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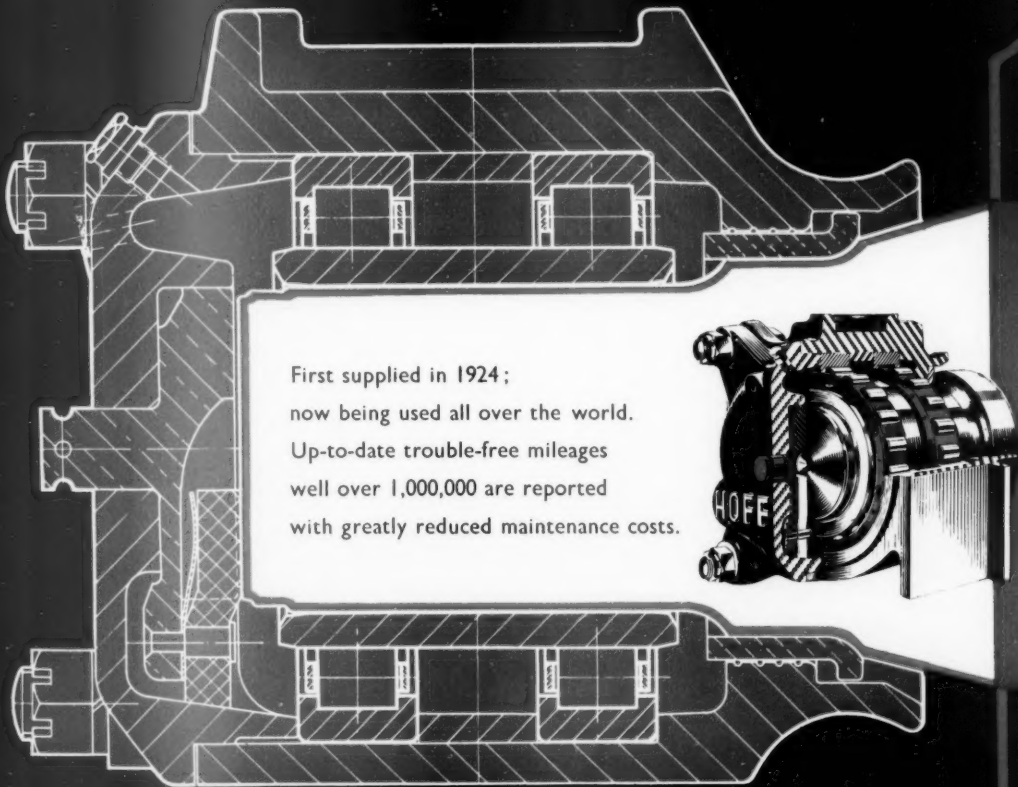
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1,365 h.p., nine of 1,160 h.p. and 10 of 800 h.p. Delivery of the remaining 20 locomotives of 1,550 h.p. will begin next year. These are for the Southern Region, where they will be employed mainly in hauling freight traffic, and on passenger services which cannot be operated by electric multiple-unit trains or electric locomotives. The electrical equipment, which includes transformers, germanium rectifiers, and smoothing apparatus, has been designed to allow the existing electric traction motors in multiple-unit trains to operate on rectified alternating current. Included in the 124 main-line coaches are improved heat and sound insulation, better lighting and interior finishes, and brighter upholstery fabrics. The windows of first class coaches will be double-glazed, and all vehicles will have litter bins. The 54 freight vehicles are of four special types, designed for carrying difficult loads for which standard wagons are unsuitable. We reported last week that the B.T.C. had placed orders for 102 diesel shunting locomotives in the 200-225 h.p. range. This focuses attention on these types already in service and now being perpetuated as a result of the latest decisions. The Drewry Car Co. Ltd. received orders for 13 locomotives and 37 sets of power and transmission equipment for locomotives to be built by British Railways. When the orders are completed there will be some 233 locomotives of this type in service. This gives some indication of the reliance which is being placed on the multiple-speed epicyclic transmission.

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Further Diesel Locomotives for British Railways

INTRODUCTION of diesel locomotives in areas in which steam power is to be replaced entirely, so that the advantages of diesel traction can be exploited to the full is a declared policy of the British Transport Commission. In pursuance of this line the Commission has placed contracts for 69 main-line diesel locomotives of various horsepower, further details of which are recorded in our Contracts and Tenders columns. Contracts have also been placed for electrical equipment for the conversion of the existing Liverpool Street-Chelmsford-Southend electric trains at present working on 1,500 V. d.c., to operate on the 50-cycle a.c. system; main-line passenger coaches with improved amenities; and wagons for the conveyance of large loads. Of the 69 main-line diesel locomotives, 49 are to be delivered this year. They consist of 10 locomotives of 2,000 h.p., 20 of

Congestion on the London Underground Lines

INSTALLATION of more loudspeaker equipment at certain Underground stations will be a help when delays occur, and the replacement of the oldest rolling stock will reduce the number of delays considerably, but as Sir John Elliot, Chairman, London Transport, rightly states in a letter to *The Times*, "It would be to mislead the public if we were to leave it at what can only be a palliative for a far more deep-seated malaise." The problem of carrying an ever-growing concentration of passengers in the morning and evening peak periods does not only exist in London; but in the centre of London, unlike other large cities, no tube has been built since 1907. Sir John Elliot believes that the construction of the Victoria Line tube, for which parliamentary powers exist, would give the greatest easement to the severely pressed Underground system, and to Londoners generally over a wide area. The stumbling block to this scheme is the fact that it would not pay. The immediate alternative is an intensive effort to spread the rush hour load by more staggering of working hours. This course, already strongly advocated by the Ministry of Transport, is being emphatically urged by the London Transport Executive.

Great Northern Line Improvements

THE drastic action to be taken by the Eastern Region of British Railways in completing extensive track improvement work on the Hertford North branch of the Great Northern line by June of this year instead of spreading it over some two or three years, will doubtless be welcomed by most passengers. By June, all services on the branch will be operated by diesel-hauled or diesel multiple-unit trains capable of giving a far better performance than at present, with speeds raised to 70 m.p.h. over almost the whole of the line. Work will be concentrated first between Wood Green and Crews Hill, starting on February 1, for completion before the end of March. The remaining section between Crews Hill and Hertford North will then be taken in hand. While work is in progress the train service in the relevant section will be replaced by buses, except during the morning and evening peaks when a near-normal train service will operate over the whole branch. This is an essential preliminary to electrification, and by taking bold and imaginative action passengers will not have to suffer the inevitable delays caused by single-line working and heavy speed restrictions necessitated by normal track improvement work.

Electric Services to the Kent Coast

THE provisional service between London, and the Kent Coast resorts, Canterbury East, and Dover, to be introduced in June, when electrification is inaugurated from Gillingham to Ramsgate and Dover, provides fast business expresses in the morning and evening, and fast and stopping hourly services throughout the day. In the down direction, fast trains at 40 min. past the hr. from Victoria divide at Gillingham, affording times of 1 hr. 54 min. to both Ramsgate and Dover. The fastest down business express from Cannon Street is to reach Margate in 86 min. Besides the seaside resorts from Whitstable to Ramsgate, towns such as Faversham and Canterbury require a good service all the year round. It has not yet been decided in which trains to include refreshment cars. A refreshment service, at least a buffet, in all fast trains would certainly be a selling point, but patronage at certain times of day might be poor. On balance, it seems preferable to provide refreshment facilities on a regular basis in the longer-distance trains, unless the loss on the business, or difficulty in rostering staff, is prohibitive.

Manufacture of Locomotive Components

CONSTRUCTION of the Indian Railways Locomotive Component Works at Manduadih, near Benares, is reported to be proceeding according to schedule. The project is estimated to cost about £3,600,000. A little less than one-third of this represents outlay on machinery and plant, and tenders have been invited for nearly half the equipment. The technical training school, basic training workshop, and associated apprentices' hostel, are nearing completion. The first batch of apprentices will begin training shortly. The factory will produce mainly spare parts of standard broad- and metre-gauge locomotives. Provision is also suggested for manufacture of carriage and wagon components. It is proposed to set up in the same works a centralised machine tool reconditioning department where specified machine tools in common use on the Indian railways will be reconditioned to extend their life. The declared object of this last step is to reduce imports of machine tools and so to save foreign exchange. The problem would appear to be mainly one of recruiting and training manpower, and the works no doubt has been sited accordingly.

Rebuilt Goods Depot at Lincoln

GOODS traffic lost to road transport in recent years will be very hard to recover unless British Railways gain the confidence of a good many customers by improving handling facilities and proving that they can, as in very many cases they do, provide an efficient and speedy service. An important step towards bettering services in Lincolnshire was taken last week, when Sir Reginald Wilson, Member of the British Transport Commission and Chairman of the Eastern Area Board, opened the rebuilt goods depot at Holmes Yard, Lincoln, in the Eastern Region. The ceremony took place in the single-span, steel-frame goods shed. This, the principal structure in the depot, is nearly four times larger than the old shed. Without internal roof supports or other hinderances to movement and with an area of 368 ft. by 140 ft., it is one of the largest single open buildings in Britain. Its construction, as Sir Reginald Wilson pointed out, was a major engineering feat. He warmly congratulated all those concerned with its construction, and also praised the staff for maintaining good service during the period of reconstruction. The mechanised equipment in the new shed should materially reduce the physical labour hitherto demanded, and at the same time, speed up the process of unloading traffic from wagons and preparing it for delivery.

Newark Bay Bridge Disaster

IN its report on the accident on the Central Railroad of New Jersey on September 15, 1958, when, as recorded in our issue of September 19, a diesel-hauled train overran

all signals at the open Newark Bay lifting Bridge, near New York, the Interstate Commerce Commission found that the signalling and the locomotive and train braking equipment were in proper order and functioning normally. Responsibility thus rested entirely on the driver for failing to obey the signals, which included adequate approach aspects. He was running at such a speed that the derailleurs used at such locations in the U.S.A. proved ineffective. The Commission recommended the railway to install a speed control or train stop device capable of stopping a train well clear of the bridge should signals be against it. The management has now requested permission from the I.C.C. to install train stop apparatus and also is fitting its diesel locomotives with a more effective form of dead man's control.

Bogie Wagons for Indian Railways

THE Indian Railway Board has placed orders with Indian manufacturers for 1,750 broad-gauge eight-wheel bogie wagons, of a new standard design. The Indian railways have traditionally used four-wheel 22-ton wagons. The 55-ton capacity of the broad-gauge bogie wagons will greatly help the throughput of traffic by increasing the capacity of goods trains. For the time being the new wagons are to be confined to the steel-producing areas in Bengal and Bihar. Provision for a further 4,000 wagons is being made in the 1959-60 rolling stock programme. Beginning with the 1960-61 programme, the Board has decided that all open wagons and 50 per cent of covered are to be bogie wagons built to the new design. The Ministries of Transport & Communications, of Steel, Mines & Fuel, and of Commerce & Industry have been asked to inform harbour authorities, steelmakers, cement manufacturers, collieries, and so on, of this decision, so that in their future plans for mechanisation of loading and unloading on their premises they can provide equipment of adequate capacity to minimise detention to wagons. The Railway Board is now considering the design of eight-wheel wagons for the metre gauge.

All-Sleeping-Car Trains

THE new sleeping car train of the Western Region between Paddington and Milford Haven is yet another British night express composed of sleeping cars only. On the Continent of Europe all the former *trains-de-luxe*, restricted to first class sleeping cars and commanding substantial supplementary fares, now include ordinary first and second class coaches, except for the "Blue Train" between Paris and the Riviera, the "Rome Express" (in Italy), and a Rome-Milan all-sleeper train. In Britain the number of such trains is increasing. There are the "Night Scotsman" between Kings Cross and Edinburgh (first class only in summer), the "Tynesider" between Kings Cross and Newcastle, and, in summer, the "Aberdonian" between Kings Cross and Aberdeen; the 10 p.m. from Euston to Glasgow; the 12.15 a.m. from Paddington to Penzance; and now the 12.45 a.m. from Paddington to Milford Haven, with corresponding return services. This is a field in which the railways can compete on good terms with air transport, as in the train the businessman can sleep in comfort, be certain of reaching his destination in all weathers, when, as in fog, air services may be suspended, and travel without loss of working time. Most of the British trains named have no publicly-booked intermediate stops, as is becoming the general practice with British Railways sleeping car expresses, to avoid disturbance to passengers.

C.I.E. Transport Sales Organisation

ANNOUNCEMENTS of appointments in the commercial organisation of Coras Iompair Eireann, recorded in our personal pages, follow close on the outline of plans to capture traffic given by Dr. C. S. Andrews, Chairman of C.I.E., to the Dublin Chamber of Commerce and the subject of an editorial article last week. To the new post of Commercial Manager, in the Traffic Manager's Department, is appointed Mr. P. G. Byrne, who has been

in charge of existing Traffic Development Section since 1949. He will be responsible for reorganising and extending the sales force and directing the sales campaign. His experience includes working of general-purpose containers, which are now to play an increasingly important part in developing traffic. The other appointment is that of Mr. D. Delaney as Commercial Superintendent. His new responsibilities include the "package deals" with firms to carry all their traffic on a contract basis, for which knowledge of rates gained whilst head of the Rates Section is valuable preparation. The need of C.I.E. for prompt action in the commercial field is great. It is to be hoped that creation of the new sales organisation will be followed quickly by a vigorous sales campaign.

Smart Turn-out

IN an age in which, at least in Britain, widespread dislike of wearing any sort of uniform, including headdress, is linked with wearing uniform in a slovenly way, it could hardly be expected that many uniformed employees of British Railways and London Transport would be noticeably smart. That they are not so is obvious to any traveller, though there are many exceptions, often in places remote from larger centres. The uniforms issued to the several grades of railway staff, including even porters engaged on miscellaneous jobs in passenger stations, can look smart when properly worn with cap and appropriate shirt, shoes, and so on. As "The Man on the Line" points out in the current issue of *British Railways Magazine*, utility, durability, and cost must be major considerations in their design. The inevitably rough work done by many uniformed grades need not preclude good turn-out, as is evident, for instance, on the Swiss and German Federal Railways, at least among staff who deal with the public. Good turn-out in a railwayman, like external cleanliness of a locomotive, is good publicity for the railways. In most people it also enhances pride in their work.

Scottish Region Traffic Organisation

REORGANISATION of the traffic departments of the Scottish Region, some little time after the other five Regions of British Railways have completed or initiated revision of their own traffic organisations, has been expected for some time. The British Transport Commission is known to favour such schemes, designed in principle to improve co-operation between the commercial, operating, and motive power officers, and greater flexibility in seeking and quoting for traffic and in arranging services. Regional managements were allowed freedom to make their own arrangements. The result is five organisations, some not yet functioning fully, and each with its own characteristics, for the five Regions in England and Wales. A major factor, and one conducive to easier implementation, is the divisibility of a Region. This has been facilitated in the Eastern and Southern Regions by the layout of the routes of the former railway companies concerned before grouping in 1923. In the London Midland Region the new traffic organisation is on a different basis, with divisions based on industrial geography and boundaries cutting across main routes.

The changes in the Scottish Region so far decided on are stated to amount only to establishment of three divisions, the Glasgow & South-West, the East Coast, and the Northern. The boundaries of these are not yet finalised. Provisionally the eastern boundary of the first-named is to be a line including part of the West of Scotland, the central area, and the South West inclusive of the former Caledonian Railway main line from Glasgow via Carstairs to Carlisle. The area, therefore, will contain part of the former North British Railway West Highland line, many lines in the Glasgow area of the former Caledonian, North British, and Glasgow & South Western Railways, all the G.S.W.R., and much of the C.R. The East Coast Division provisionally will be the N.B.R. main lines from Berwick-on-Tweed to Edinburgh and on to Dundee and Aberdeen;

N.B.R. lines in Fifeshire; and the N.B.R. Edinburgh to Carlisle main line. The headquarters of the G. & S.W. Division will be in Glasgow, and those of the East Coast in Edinburgh. The first appointments to these as Divisional Traffic Managers, of Mr. G. L. Nicholson and Mr. J. M. Fleming respectively, are recorded in our personal columns. No other details are fixed, but it seems that the new traffic divisions will resemble those of the London Midland Region, in that their boundaries will cut across railway routes.

In the Scottish Region, division according to railway geography is less readily effected than in the Eastern and Southern, but easier than in the North Eastern and Western Regions, which are, roughly, the former North Eastern and Great Western Railways respectively. There were five major railways in Scotland before grouping, the Caledonian, North British, Glasgow & South Western, Highland, and Great North of Scotland. The first three of these built competitive lines in the same areas of the Lowlands. Since nationalisation in 1948, a great deal has been done to rationalise services, largely by co-ordinating those of the former rival companies, so that division according to former railway ownership of routes is not easy.

Whether this consideration, or caution in waiting to see how other Regions fare, has made the Scottish Region the last to embark on re-organisation, is impossible to say. The Regional management may have felt that the existing arrangement of districts, with, in most cases separate commercial and operating officers, and separate motive power officers, was adequate, or at least did not justify the disturbance caused by re-organisation. There is reluctance to be pinned down to a hard-and-fast organisation until details are shown by experience to be justified. Sir Ian Bolton, Chairman of the Scottish Area Board, has emphasised that the new organisation will not come into force until the officers concerned have had an opportunity to survey their divisions and discuss with the Regional management precisely how it is to function. Mr. James Ness, General Manager, considers that it will be at least six months before the problems of accommodation, communications, and staffing which the new arrangement would involve can be worked out. In view of the difficulties already experienced by other Regions in setting up their organisations, not only in determining responsibilities, and boundaries, but also in appointing staff and finding or providing headquarter office accommodation, this refusal to be hurried is justified. The campaign for more traffic is already being carried on vigorously by the staffs in the present commercial organisation.

Canadian National Railways in 1958

ALTHOUGH adverse business conditions, lingering from the sharp decline in industrial activity in 1957, reduced traffic on all railway lines, the Canadian National Railways continued construction of branches through areas rich in mineral resources. This is stated by Mr. Donald Gordon, Chairman & President, Canadian National Railways in his year-end review of 1958.

In Manitoba, work is well under way on a 52-mile branch line from Optic Lake to Chisel Lake and it is expected that this access to the property of the Hudson Bay Mining & Smelting Company will be completed in 1960. It will add to the rapid development of northern Manitoba, important steps in which were completion of the line to Lynn Lake in 1953, and the opening in 1957 of the 31-mile branch line from Sipiwesk on the Hudson Bay line to the nickel deposit being developed by International Nickel Limited at Thompson in the Moak Lake-Mystery Lake region.

In Quebec, where 1957 saw completion of the 161-mile westerly arm of the Chibougamau line, Beattyville to Chibougamau, track has been laid and an initial ballast lift completed on the 66-mile first section of the easterly arm from St. Felicien to Lake Chigoubiche. A start has also been made to lay track on the second and linking section from Lake Chigoubiche to Cache Lake. This work will continue after the winter, during which bridge cross-

sings are being built. Completion of the entire Chibougamau line, forming a 294-mile arc through northern Quebec, is expected by the end of 1959.

Elsewhere on the C.N.R. new methods and new materials and equipment were put to use to consolidate and improve services across 10 provinces and on subsidiary lines in the U.S.A. A major acceleration of goods services, new passenger rolling stock and timetables, opening of the Queen Elizabeth Hotel in Montreal, and the new communications facilities were notable events of the year.

Estimates show that tonnage figures for revenue freight handled in 1958 will be down by about 10 per cent from 1957, a decrease of 8,000,000-9,000,000 tons. Freight revenues will be down by a lesser percentage, some 8 per cent, because part of the reduction was in traffic that moves at comparatively low rates. The chief decreases in revenue freight traffic were recorded in anthracite and bituminous coal, iron and steel, ores and concentrates, newsprint, motorcars and parts, pulpwood and crude oil. A major reduction in the number of immigrants and a decline in military movements, were important factors in the reversal of an upward trend in passenger traffic revenues over the previous three years. It is anticipated the decrease in passenger revenue will reach about 12 per cent for the year.

During 1958 the C.N.R. faced, like all Canadian railways, the problem of finding ways to increase wages while the volume of revenue traffic was depressed. A general freight rate increase of 3.6 per cent, authorised by the Board of Transport Commissioners to take effect from January 15, 1958, was first postponed and finally disallowed by the Federal Government. Faced with wage increases recommended by a Federal conciliation board, the C.N.R. and two other major railways applied for an interim general rate increase of 19 per cent, with 25 cents a ton on coal and coke, representing the minimum required by the C.N.R. to pay wage increases based on the conciliation board recommendations. A rate increase of 17 per cent, with 22 cents per ton on coal and coke, was granted, effective from December 1, 1958, and a wage settlement was effected with the non-operating unions. At the year-end negotiations were still in process between the C.N.R. and unions representing train crews, including footplate staff.

A total of 309 new diesel locomotives delivered during the year brought the number in operation to 1,742. The number of steam locomotives was reduced to 1,290. All train operations in the Atlantic Region, and on the south shore of the St. Lawrence River west to Montreal, are now completely by diesel motive power. Also, except for one or two steam operated trains, all of the Northern Ontario, Quebec, and British Columbia Districts have been converted to diesel operation. By the end of 1958, it was estimated that more than 80 per cent of goods train miles, 90 per cent of yard locomotive miles, and 82 per cent of passenger car miles would have been converted to diesel operation.

A new diesel maintenance shop was brought into operation on October 1, at Cote de Liesse, Montreal, one of the principal running maintenance points in the Central Region, and work is under way on running maintenance shops at Edmonton and at Senneterre, Quebec. Plans are being made for similar facilities at Moncton. Progress has also been made on conversion of main shop facilities at Moncton, Montreal, Battle Creek, Michigan, and Winnipeg, for heavy diesel repairs.

A new yard at Joffre, Quebec, became a fully operating unit during the year, as will the yard at Sarnia early in 1959. A new yard at Battle Creek, to be completed in 1959, is already in partial operation, and the second stage of development at Calder Yard, Edmonton, has been undertaken to meet increased traffic requirements.

Extension of C.T.C. to the entire trans-continental main line is well under way. Signalling of four subdivisions will be completed by mid-1959, with another five subdivisions scheduled for complete signalling by early 1960. C.T.C. will be in operation on 40 subdivisions when the long-term programme is completed.

Motive Power in Southern Asia

NOW that replacement of steam locomotives by diesel locomotives and railcars is well under way on the Malayan Railway, and that the Burma Railways have a number of diesel multiple-unit trains and locomotives in service, virtually all systems in the countries ranging from Pakistan to Indonesia, with the partial exception of India, have decided in principle to adopt diesel as their form of motive power. On other railways in this area, those of Pakistan, Ceylon, and Indonesia, the policy was adopted rather earlier. In Thailand, diesel traction was inaugurated on a relatively large scale nearly 30 years ago. The speed of implementation of the policy has differed according to the financial situation and to traffic requirements. Some of the railways are small by the standards of Western Europe and North America, so that recent acquisitions of diesel motive power are large in proportion to the whole. Nearly one-fifth of the 275-odd locomotives of the Ceylon Government Railways recently were diesels, besides 23 railcars, and the numbers are understood to be increased by now by subsequent deliveries. On the Malayan Railway the number of diesel locomotives in service recently was recorded as 41 out of a total of 200 locomotives, with further diesel locomotives on order, and railcars in course of delivery. The intensive use possible with diesel motive power means that the proportion of train-mileage worked by diesel is high in relation to the proportion of diesel to total traction units. On the Ceylon Government Railway it is now understood to be about 50 per cent.

The main efforts of the Indian railways are being directed to electrification for the most heavily trafficked sections, with diesel haulage as the alternative for other lines. As electrification proceeds, it is intended that the diesel locomotives displaced from the electrified sections shall be transferred to replace steam on others. On completion of steam locomotive orders now being executed abroad, no further steam power is to be ordered. The Chittaranjan Works, it is stated, will meet steam requirements. The target for diesel traction on Indian railways by the end of the Second Five-Year Plan period is 125 main-line diesel locomotives and 99 diesel shunters for the broad gauge, 20 general purpose and six shunting diesel locomotives for the metre gauge and eight general purpose diesel locomotives on the narrow gauge, all, it is understood, to be obtained from abroad. There are at present 66 broad-gauge, 26 metre-gauge, and eight narrow-gauge locomotives in operation. These are small figures compared with a total locomotive stock of some 9,500. A.C. electrification is making good progress, with locomotives and some multiple-unit stock and equipment from abroad. When enough experience has been gained in 50-cycle techniques, it may well be that the India railways, in pursuance of the policy of self-sufficiency to save foreign exchange, will embark on construction of their own electric motive power. Despite the electrification completed and in progress in Bengal and Bihar and around Bombay and Madras, the Indian railways must long continue to be steam worked.

How far those railway managements in Southern Asia which have adopted diesel traction would have chosen it but for favourable offers from some foreign countries seeking markets for the products of their diesel motive power industries, is problematical. One difficulty foreseen at first was that of maintaining so complex a machine as a diesel-electric locomotive. Much help has been given by locomotive builders in affording training facilities for the railway staffs concerned. It is hard to obtain performance figures, but the indications are that after some initial troubles diesels on several railways are functioning well, with corresponding improvements in traffic figures. It is not clear whether this has necessitated a large supervisory element in motive power running staff. It may be that the Indian Railway Board has been wise in its cautious attitude to introduction of main-line diesel locomotives. Performance in a waterless area of Western India, on the metre-gauge branch to Kandla, seems to have been satisfactory. Mechanical experience and aptitude, however, are

increasing rapidly in Asia, but they must not be over-estimated.

In the contrast with most systems in Southern Asia, the Chinese National Railways are concentrating on 50-cycle electrification, apart from building new steam locomotives. The attitude to diesel traction does not seem favourable, despite, one would have thought, the availability of fuel oil from U.S.S.R. In the Philippines, as might be expected, adoption of diesel traction is proceeding apace with, it is reported, good results. Conditions in Japan, where both diesel-electric and diesel traction have been adopted on a scale, and no new steam locomotives are being built, are too similar to those of European railways to warrant comparison with railways elsewhere in Asia.

British Transport Commission Traffic Receipts

CHRISTMAS holiday traffic on British Railways is understood to have been greater in 1958 than a year before. The number of passengers travelling from London termini last Christmas Eve was 8 per cent greater. Mild weather over the holiday may have encouraged day trips. Because of the incidence of the festival on different days of the week, however, no true comparison is possible between two years. For the four-week period ended December 28, 1958, British Railways passenger traffic slightly exceeded that for the 13th period of the preceding year. London Transport Underground receipts for these four weeks were a little more, and L.T.E. bus receipts markedly less, than for the corresponding period of 1957. Christmas traffic to the Continent and Ireland by British Railways steamer routes is reported to have been considerable. It is disappointing that ships' passenger receipts for Period 13 were less than a year previously.

	Four weeks to December 28, 1958		Incr. or decr.	Aggregate for 52 weeks		Incr. or decr.
	1958	1957		1958	1957	
Passengers—	£000	£000	£000	£000	£000	£000
British Railways	9,723	9,536	+ 187	137,654	138,563	- 909
London Transport:						
Railways	1,819	1,765	+ 54	24,228	23,087	+ 1,141
Road services	4,022	4,316	- 294	48,506	59,169	- 10,663
Provincial & Scottish buses	4,102	4,154	- 52	59,720	57,558	+ 2,162
Ships	270	302	- 32	6,878	6,879	- 1
Total Passengers	19,936	20,073	- 137	276,986	285,256	- 8,270
Freight, Parcels & Mails—						
British Railways:						
Merchandise & live- stock	6,385	6,869	- 484	92,054	106,788	- 14,734
Minerals	3,328	3,856	- 528	44,914	53,310	- 8,396
Coal & coke	9,284	9,912	- 628	121,668	127,588	- 5,920
Parcels, etc., by passenger train	3,971	3,903	+ 68	51,761	51,220	+ 541
Collection and deli- very, etc.	948	947	+ 1	12,389	13,339	- 950
Total Freight British	23,916	25,487	- 1,571	322,786	352,245	- 29,459
Others*	3,871	3,899	- 28	54,464	55,291	- 827
Total Freight, Parcels and Mails	27,787	29,386	- 1,599	377,250	407,536	- 30,286
Total	47,723	49,459	- 1,736	654,236	692,792	- 38,556

* Inland waterways freight, road haulage, and ships

No true comparison of freight traffics is possible between the four-week periods in which Christmas falls, because of the different number of working days. Nevertheless the incidence of the holiday alone would hardly account for the drop in merchandise receipts of British Railways for the last period of last year against the 1957 figure. There were increased coal despatches from collieries during the 72 hr. ended on December 27, mainly on Christmas Eve. Coal traffics for Period 13 at £9,284,000 do not compare badly, in the light of the reduced number of working days, with £9,359,000 for Period 12, though special efforts by the miners are common in the days immediately before Christmas.

Comparison of the aggregates for 52 weeks (364 days)

of 1957 and 1958 gives a discouraging picture of railway freight traffic of all kinds, though there are indications that merchandise and steel traffics may improve in the near future.

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS PERCENTAGE VARIATION 1958 COMPARED WITH 1957

	Four weeks to December 28	52 weeks to December 28
British Railways—		
Passengers	+ 1.9	- 0.6
Parcels	+ 1.7	+ 1.0
Merchandise & livestock	- 7.0	- 13.7
Minerals	- 13.6	- 15.7
Coal & coke	- 6.3	- 4.6
C. & D. services	-	- 7.1
Total	- 3.9	- 6.1
Ships, passengers	- 1.5	-
British Road Services, Inland Waterways and Ships (cargo)	- 0.7	- 1.4
Road Passenger Transport, Provincial & Scottish	- 1.2	+ 3.7
London Transport—		
Railways	+ 3.0	+ 4.9
Road services	- 6.8	- 18.0
Total	- 3.9	- 11.5
Aggregate	- 3.5	- 5.5

The Indian Government Railway Inspectorate in 1956-57

WE have received from the Indian Minister of Transport and Communications, Mr. Jagjivan Ram, a copy of the report of the Chief Government Inspector of Railways for the year ended March 31, 1957. Under the latter were Government Inspectors responsible for the following inspection circles: Bombay, Calcutta, Lucknow, and Bangalore. The total route-mileage covered was 34,776; 98.4 per cent of that mileage was managed by Government and 1.6 per cent by companies and local authorities.

During the year under review six sections of new line aggregating 118 miles, seven sections of doublings totalling 43 miles, and three sections of realignments of existing lines were inspected in detail and authorised as suitable for the public carriage of passengers. General Managers are responsible for annual routine inspections of Government-worked lines, but Government Inspectors have to inspect others. They also accompanied General Managers on their inspections of 4,937 miles of line. Furthermore they recommended to the Railway Board the sanction to the running of the new classes of locomotive listed below.

Metre gauge: "YM" (2-6-4), and "YL" (2-6-2); **narrow gauge:** "ZB" (2-6-2), "ZP" (4-6-2), "DZ" (0-8-0), and "DN" (BO-BO diesel).

During the year there were 16 serious accidents into which formal enquiries were held by Government Inspectors. They consisted of three (four) collisions in which passenger trains were involved, 12 (five) derailments of passenger trains, and one (none) miscellaneous, the numbers in brackets being those for the previous year. The collisions were all due to the failure of station staff, and the derailments were due, three to the failure of station or train staff, two to defective locomotives or rolling stock, four to failure of track or formation, and three were the result of train wrecking.

Two of the derailments were among the most serious in India and together they accounted for 275 fatalities and 151 injuries. Both were caused by floods washing away approaches and/or undermining the abutments of bridges. In the first case a passenger train from Secunderabad to Dronachellam on the metre-gauge section of the Central Railway, running at about midnight, plunged into a breach in a bridge approach, 121 persons losing their lives. Enquiries were held by the Inspector, by a Commission and by Assessors, who expressed divergent views on the cause. However, the Government eventually decided that there was no blame attached to the railway administration, but local officials should have posted a patrol on this bridge exclusively, and not for two bridges.

The other instance was also on a metre-gauge section,

the Southern Railway main line. At 5.30 a.m. the Madras-Tuticorin express fell into a breach at the abutment of a bridge, no fewer than 154 persons losing their lives; 114 were injured. The patrolman inspected the bridge at 4 a.m. and found the water level 2 ft. below the bottom of the girders and the rain had then stopped. With his normal patrol lamp he could not be expected to see that the abutment was undermined, and was not blamed by the Inspector's or a subsequent Commission's findings. The latter considered that there was no defect in the design or construction of the bridge.

The spreading of the track on old wooden sleepers was primarily responsible for the derailment of a down Rajkot-Okha mail train and the deaths of seven passengers and injuries to 28. A curious occurrence took place when a workmen's special bringing hands to Kharagpur workshops, stopped at a halt. Its engine crew was assaulted and

ejected from the footplate by a number of persons, who then opened the regulator restarting the train with no one on the engine; it crashed into a buffer stop, injuring 62 persons. Also near Kharajpur, the driver and fireman of a "WP" locomotive were seriously injured and subsequently died as a result of a blow-back through the firebox door. The fireman jumped but the driver, though seriously burnt, stuck to his engine and brought the passenger train it was hauling to a stop. The blow-back was caused by the fall plate of the self-cleaning apparatus in the smoke-box becoming unhinged and covering the blast pipe. The plate became unhinged at the upper end due to the faulty design of the suspension bracket and to the securing clips not being in position. Responsibility rested on the boiler-maker staff at the time of the boiler washout.

Traffic was interrupted on 19 occasions by floods and slips, the longest period being 17 days.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of Correspondents)

Delays to L.T.E. Underground Trains

January 8

SIR,—The members of the public concerned in the recent incidents in London Underground trains, and those who show disapproval of it in letters to the Press, would do well to bear in mind that such action may create additional delay and discomfort for a greater number of other passengers.

In cases of unforeseen interruptions in any railway service it is necessary to consider the situation as a whole, so as to normalise matters quickly and for as many passengers as possible. I would like to feel, when travelling, that in such an event the efforts of the railway staff to minimise delays to my benefit are not likely to be thwarted by the unreasonable attitude of other passengers. One efficient step in these cases is to turn late running trains back when still short of the normal destinations. The advantages of this are obvious.

In countries where they do not stand so much on ceremony in these cases, the passengers concerned might be left in the train if they did not alight when invited to do so by the railway staff, and in the case of any attempt to prevent the train being sent to its new destination, as in holding open the doors, they might suffer arrest for obstructing a public service.

Yours faithfully,

R. S. WARDLE

c/o Bank of London & South America Limited,
40-66, Queen Victoria Street, E.C.4

Late Issue of Timetables

January 9

SIR,—The North Eastern Region of British Railways amended many of its passenger services on January 5. Yesterday, January 8, I was unable to obtain their timetable supplement for myself, and learnt that the inquiry office at Cambridge had none for its own use. Not one of the six Regional supplements was available on January 3, and only three were available yesterday. Twice in recent months I have been unable to obtain advance information locally about diesel services due to start in the area concerned one or two days later.

In one case I was given delay at the printers as an excuse. A suspicion that the printers are given impossible tasks was confirmed when I received the December supplement to the London Midland Region timetable, a monstrous publication which I was surprised to see had been operating since the middle of the previous month.

Frequent train service alterations may be expected during the next few years, as modernisation progresses. With careful editing, both the summer and winter Regional timetables and the monthly supplements could be made much less bulky and easier to use. If, for instance, a

diagram map showing table numbers of connecting services were substituted for all but the most important connections shown in Table 50 (Euston-Crewe) of the London Midland Region timetable, the latter would be much shorter, most of the 200-300 footnotes could have been dispensed with, and it would not have been necessary to reprint it on November 17.

Yours faithfully,

P. BUTTERFIELD

2, Belvoir Terrace, Cambridge

The Royal Albert Bridge

January 12

SIR,—In view particularly of the intention of the Western Region of British Railways to celebrate the centenary of the opening of the Royal Albert Bridge, Saltash, may I correct an error concerning the opening date on page 4 of your issue of January 2? There you state that the bridge was formally opened by the Prince Consort on May 3, 1859. The date should be May 2.

A Royal train time bill issued by the Bristol & Exeter Railway, and now in the possession of this club, shows the running of the Prince Consort's special train from Windsor to Saltash, returning from Cornwall Junction to Windsor, on Monday, May 2, 1859. The train was scheduled to leave Windsor at 6 a.m., reaching Saltash at 12.15 p.m. On the return journey, it was booked to leave Cornwall Junction at 6.50 p.m., arriving at Windsor at 12.50 a.m. the following day. According to the reports in *The Times* of May 3 and 4, 1859, this train arrived at Saltash within 5 min. of its booked time, while on the return journey, it is said to have left Cornwall Junction at 7 p.m., with an arrival at Windsor at 1 a.m. The stops shown in the time bill were Bristol, Taunton, Exeter, Newton (Abbot), and Cornwall Junction in the down direction, and Exeter, Taunton, and Bristol in the up. Obviously, however, in those early days, additional stops must have been required for service purposes.

The same date, May 2, is also given for the formal opening of the bridge by E. T. MacDermot in his "History of the Great Western Railway" (Vol. II, page 278).

Yours faithfully,

B. D. J. WALSH
Honorary Secretary

The Railway Club, 320, High Holborn, W.C.1

[We are grateful to our correspondent for establishing the date of the formal opening. It has often been given as May 3 in official G.W.R. publications, e.g., "Brunel and After," page 53. MacDermot does not state clearly that May 2 was the formal opening, but writes: "On 2nd May H.R.H. The Prince Consort came down to open the great Bridge, to which he had given his name."—Ed., R.G.]

THE SCRAP HEAP

Children's Railway in New Delhi

The Indian Railway Minister, Mr. Jagjiwan Ram, recently presented to the Prime Minister, Mr. Jawaharlal Nehru, on the occasion of his birthday in New Delhi, a "children's railway," built to 15-in. gauge and extending over half a mile. The locomotive, 25 ft. long and weighing 8.6 tons, is a gift from Krauss Maffei A.G. and the Tata Locomotive & Engineering Co. Ltd. The two coaches which make up the train, with a total seating capacity for 50 children, were designed and manufactured by the Northern Railway at its Amritsar works.

Complete signalling equipment, a locomotive and carriage shed, turntable, water column, a station, overline footbridge, and a tunnel have been provided.

Beginnings of the Northern City Line

It may be interesting to many of our readers to know that construction work has already been begun on the Great Northern & City Railway, and is being pushed forward as rapidly as possible. The start has been made in the vicinity of the New North Road. The scheme had so many ups and downs before the capital was obtained for it that the fact of work having actually commenced is especially interesting. Perhaps the old proverb about a bad beginning and a good end may apply to the Great Northern & City.—*From "The Financial Times" of December 24, 1898.*

[The Great Northern & City Railway, which is today the Northern City

Line of London Transport, had been promoted with the moral, but not financial, support of the Great Northern Railway. It was intended to accommodate G.N.R. suburban trains through its 16-ft. tubes to Moorgate. It was incorporated on June 28, 1892. The original contractor, J. Willans, who had built the Liverpool Overhead Railway, died, and capital could not be raised. In August, 1898, S. Pearson & Son took up the contract, and became large investors. They worked the railway for three years from its opening on February 14, 1904.—*Ed., R.G.]*

Language Barrier?

Rushing into Morden Underground station without a ticket, a passenger called the ticket collector who stopped him "You silly old —." At Wimbledon police court he was fined £2, with £5 costs, for using offensive language.—*From the "Evening Standard."*

British-Built Tank Engines in Japan

A Japanese correspondent states that the last of a class of 0-6-2 tank engines built in Britain for the Imperial Japanese Government (now Japanese National) Railways in 1898-1905 was recently withdrawn from service. The original "B6" class tanks were supplied by Dübs and Sharp Stewart, which firms were amalgamated in 1903 to form the North British Locomotive Co. Ltd. Some were built at the Government Railways works at Kobe, and others in Germany and the U.S.A. The total number of engines of the class was 526.

During the Russo-Japanese war of 1904-05, some of the locomotives were transferred to work on military railways in Manchuria and Korea, but were later returned to Japan, where they were used for goods trains and for general service on steeply-graded lines. In recent years they were used as shunters, on which duties they gained an excellent reputation. Latterly they had been replaced by diesel shunting locomotives.

The Japanese Railway Fans' Club organised a ceremonial gathering to mark the withdrawal of the last of the "B6" class. Of all the 526, those built in Britain survived longest.

Writing in the Train

What has changed in the last 40 years is not so much the smoothness of the line from Rugby to London as that of the lives of [those] who . . . now use it. I find my sole opportunities to write come during travel; the most precious by-product of all visits out of Manchester (and the most precious primary product of some) is what can be written on the journey. Many great books were the work of men in prison. Today the only leisure, enforced or not, that some of us get is in the train.

Before these last hours of freedom are snatched from us, would it not be of interest to publish a catalogue, starting with Dickens and Trollope . . . of who has written what, not about trains, but in them?—*From a letter to "The Manchester Guardian."*

Old Bore's Almanac, 1959

Now the year that's just begun
(Born on January 1)
Started off with prospects all set fair
and fine,
But we shan't get very far
In the realms of things that are
Ere we see the shape of 1959.
We expect the B.T.C.
To talk optimistically
And, in spite of lots of branch lines
going west,
They will strive and stress and strain
To convince us, in the main,
That what happens must be always for
the best.

When the men of Kent complain,
Southern Region chaps explain
With a mixture of apology and boast
That it's really quite all right—
They're engaged from morn till night
In electrifying to the Thanet Coast.

Although diesels, wages, fares
Creep up on us, unawares,
The elect, to whom all railway news is
sweet,
May take comfort, by the way,
From the tidings of the day—
They're achieving a new look for
Cannon Street.

A. B.

The Great Western Railway at Victoria



The new frontage of Victoria, S.E.C.R., after completion 50 years ago. The name of the G.W.R. on the building recalls use of the station by that railway. G.W.R. services were confined to local trains and to short-lived expresses to Birmingham before the 1914-18 war

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

RHODESIA

Bogie High-Sided Wagons

During December 1958, a further 199 bogie high-sided steel wagons were put into service on the Rhodesia Railways. This brings the total number of wagons received up to 494 against a total of 500 ordered.

Express Goods Service

Rhodesia Railways is now running a fast goods train, the "Railstar," every night in both directions on the Bulawayo-Salisbury line. It offers a complete service with guaranteed collection and delivery in the two cities and their established commercial suburban centres. Cartage areas have been extended and the contractors' lorry fleets are supplemented by railway vehicles, some of which are radio controlled. With the "Railstar" service a definite undertaking is given to accept goods from town up to 5 p.m. Deliveries commence at 7.30 a.m. the morning following despatch and are completed during the forenoon, except on Sundays and public holidays.

INDIA

Footboard Travel

The Deputy Minister of Railways, Mr. Shah Nawaz Khan, stated recently that the incidence of travelling on carriage footboards was not on the increase. The total number of fatal accidents so caused between January 1 and September 30, 1958, was 25.

Measures taken by railway management to discourage the practice are: (1) display of posters at stations and exhibiting notices in compartments of trains, depicting the dangers and asking passengers to desist from travelling on footboards; (2) similar announcements by loudspeaker at stations; (3) raids by ticket checking staff in conjunction with the Government Railway Police; and (4) provision of additional accommodation by strengthening existing trains and running more trains, depending on availability of stock, and on line capacity.

Incentive Scheme for Railwaymen

The incentive scheme already in force at Chittaranjan Locomotive Works is to be extended to all other railway workshops as early as possible. It has been introduced partially in a few manufacturing sections of the Jamalpur and Kanchrapara shops of the Eastern Railway and also in the Perambur shops of the Southern Railway. The main features are stated to be as under: (1) Detailed time studies and cutting tests have been conducted to build up basic data which forms the basis for computing allowed times. (2) Allowed times are so fixed that a workman of normal ability by working to it can earn one-third over and above his basic wages in respect of period spent on piece work jobs. This time includes allowance for fatigue, general handling, and so on. (3) To prevent overwork, ceiling profits are restricted to 50 per cent of the basic wages. (4) Basic wages of all employees are

guaranteed irrespective of piecework results, but losses during any one month are adjustable against the profits during the same month.

NEW ZEALAND

Car and Rail Ferry

The New Zealand Government has approved the operation of a sea transport service between Wellington and Picton at the northern end of the South Island, across Cook Strait from the capital. In making the announcement, Mr. Nash, the Prime Minister, said that the service envisaged would run both ways daily, except Sundays, and the ferry would be equipped with rails, to carry up to 20 railway wagons. He said that the Government had decided to institute inquiries forthwith into the facilities available for planning and constructing a suitable vessel and there would be no avoidable delay in completing the inquiries. Picton is three hr. sailing time from Wellington.

VICTORIA

Standard-Gauge Line Signalling

Tenders have now been invited for power-operated signalling and C.T.C. equipment, to the value of £1,000,000, for the Melbourne - Wodonga £11,000,000 standard-gauge project. Details of the tender were recorded in the Contracts and Tenders columns of our January 9 issue.

The signalling installation involves 200 miles of track circuiting, more than 100 home signals, 74 automatic signals, 35 power points and 30 electric switch locks for 15 crossing loops, 10 grade crossings, where the broad gauge intersects the standard-gauge track, and 30 sidings. About 15 new flashing light signals will be erected at level crossings, eight existing signals of this type will be altered, and there will also be six new boom barrier installations.

The bridges and culverts between Mangalore and Wodonga are being prepared for earthworks. Eighty-two culverts and sub-structures for 34 bridges have been completed, and work is in progress on 42 culverts and 56 bridges. Altogether, it will be necessary for a total of 157 bridges and 185 culverts to be duplicated. Bridge work in progress mainly consists of abutments in preparation for earthworks. The two largest railway bridges will span the Broken River at Benalla and the Ovens River at Wangaratta. All but three of the 20 piers for the Benalla bridge have been completed, and work is not in hand on the steel cofferdam required for the construction of the concrete pier in the river bed. Pile driving for the 16-span bridge over the Ovens River at Wangaratta will com-

Bridge Construction in New Zealand



New bridge over the Waimakariri River, north of Christchurch, brought into use on September 1, 1958, showing Picton-Christchurch railcar crossing

mence soon. Cofferdams will be necessary for the two main piers.

Some 720 men are now employed on the standard-gauge project. Camps have been established at Wodonga, Chiltern, Wangaratta, Benalla, Euroa, Longwood, Seymour, and Broadford, and another is being set up at Wallan.

CANADA

P.G.E. - N.A.R. Link

The interconnecting link between the Pacific Great Eastern Railway and the Northern Alberta Railways at Dawson Creek became operative on December 15, when P.G.E. wagons were moved on to N.A.R. track to load grain at Dawson Creek elevators. The 800-ft. long line connecting the two systems had been idle since the P.G.E. extension was opened awaiting sanction from the Federal Board of Transport Commissioners.

Budd "R.D.C." Stock on C.N.R.

The Canadian National Railways has introduced Budd "R.D.C." stock on the day train between Montreal, Boston, and New York. The train provides a through service to Boston, eliminating the necessity of changing trains at White River Junction.

In the service to New York the "R.D.C." stock operates from Montreal to Springfield, where passengers change to the New Haven Railroad for the re-

mainder of the journey. The train, "The Ambassador," leaves Central Station at 9.45 a.m. daily to reach Boston at 6.30 p.m. Passengers reach New York at 10.15 p.m.

ARGENTINA

Rationalisation in Rosario

The plans for rationalisation in Rosario will be put into force again in 1959, according to a decision of State Railways, after having been suspended since 1956. One of the first works to be started will be the diversion of the Buenos Aires-Rosario and Tucuman-Rosario lines of the General Mitre Railway through Ludueña, another being the elimination of the Playa Madera yard and the construction of a tunnel from Sorrento to the port zone to provide access for the trains of the General Belgrano Railway. These works will allow for the elimination of 16 level crossings and the opening up of a large number of streets.

UNITED STATES

The Rio Grande Western

The President of the Denver & Rio Grande Western Railroad stated recently that his line was in the strongest financial position of its history. It has a cash balance of more than \$27

million, with no immediate financing requirements. Operating revenues, which in 1958 totalled \$77.5 million, are expected to rise to at least \$83 million during the current year. The railway operates in extremely mountainous conditions with correspondingly high expenditure.

U.S.S.R.

New Rail and Road Bridge in Moscow

Expansion of the City of Moscow in a south-westerly direction has necessitated construction of an extension of the Underground Railway and a new highway across the Moscow River. To bridge the latter a combined rail and road bridge has been built consisting of a central 254-ft. concrete arch span with similar but smaller flanking spans. The bridge was erected on the river bank in two halves, one to carry each half of the traffic. The first half was rolled out on timber falsework to mid-stream and then floated into position over prepared foundations, this 5,000-ton structure requiring 248 water-ballasted pontoons; it was lowered on to its bearings by filling the pontoons with water. The second half of the structure was similarly treated. The two halves together carry a four-lane roadway on the top of the arches and the Underground tracks at a lower level. Footways are also cantilevered out on both sides of the bridge.

Publications Received

World Railways, 1958-59.—Edited and compiled by Henry Sampson. London: Sampson Low's "World Railways" Limited, 25, Gilbert Street, W.1. 13 in. x 8½ in. 358 pp. Fully illustrated. Price £5 5s.—A new feature of the fifth edition is the rearrangement in one section of 125 pages, at the beginning, of all the tabulated information on railways, listed by countries. As in the previous edition, particulars are given of gauge, track, motive power, rolling stock, and civil and mechanical engineering data, with some traffic figures. In addition there are financial data, and, where available, average speeds of passenger and goods trains, gross ton-miles per freight train-hour, and operating ratios. The inability or unwillingness of some administrations to supply information has resulted in a good many blank spaces. The section containing amplified details of major railways includes reports of activities in 1956 and 1957, development trends, and, in many cases, their plans and requirements over the next few years. Information on the two last-mentioned is likely to become quickly out of date. In this respect the relative infrequency of publication of this work is a disadvantage. The third section gives information on underground and other urban railways, including underground sections of main-line railways in Brussels and Copenhagen. The maps

illustrating these are inadequate, and indeed the general absence of good maps is a major defect of this otherwise well-illustrated work. After the section listing locomotives and rolling stock builders by countries are some notes on the Association of American Railroads and on the International Union of Railways and other international railway associations.

Locomotives of British Railways. Great Western Group. A Pictorial Record by H. C. Casserly and L. L. Asher. London: Andrew Baker Limited, Spring House, Spring Place, N.W.5. 8½ in. x 6 in. 114 pp. Price 8s. 6d.—This is the last in a series of four volumes illustrating all classes of locomotives which have been owned by British Railways since 1948, with brief notes on each class. The engines of the Great Western Railway and the smaller lines it absorbed, complete the record. Despite standardisation, little affected in 1923 or at nationalisation, nearly 150 photographs have been reproduced, some showing the main variations to a class which have resulted in any marked difference in external appearance. Also included in this volume are locomotives of B.R. standard and "WD" classes.

Hotels and Restaurants in the British Isles, 1959.—Published by the British Travel & Holidays Association at 6s.,

this 360-page guide provides good value for money. Detailed information, including tariffs and particulars of facilities provided, is given on 4,000 hotels in Great Britain and Northern Ireland. The maps are a particularly useful feature. They include one of British Railways, besides 16 sectional maps of Great Britain and Northern Ireland and well-known tourist areas. A description is given of all places in which the selected hotels are located. Lists of restaurants in London and the provinces specify minimum table d'hôte charges with comments on the cuisine.

Calendars for 1959.—We have received calendars for 1959 from the Société Générale de Constructions Electriques et Mécaniques; the Butterley Co. Ltd.; Kisha Seizo Kaisha Limited; and Daimler-Benz Aktiengesellschaft.

Holidaymaking, 1959.—The 64-page catalogue issued by Thos. Cook & Son Ltd. and Dean & Dawson Limited gives details of holidays in many parts of Europe, including Yugoslavia, Czechoslovakia, and the U.S.S.R., also in Malta, Tripoli, Canada, and the U.S.A. Many of the itineraries provide for rail travel, including the escorted tours in America. The variety of environment from which to select is great. Some of the charges are extremely moderate. The programme is attractively and profusely illustrated in colour and monochrome.

R.E.N.F.E. Reorganisation of Lines Around Madrid

A major scheme of railway reorganisation will enable through passenger working between the north and south of the city and the segregation of goods and passenger traffic

A WIDESPREAD scheme of railway reorganisation is in hand in the lines of the Spanish National Railways serving Madrid. There are three principal objects in the works, which have been in hand over a long period and which have now reached an advanced stage.

The first of these is the provision of a terminal station in Madrid for the railway from Burgos and its connection with the rest of the network. The second is to improve efficiency by the interconnection of all lines serving the capital. The third is to facilitate the movement and dispersion of traffic by means of greater capacity and better distribution of the railway installations.

The plan which has been adopted by the administration will enable through-working of all passenger traffic between Chamartín Station in the north and the

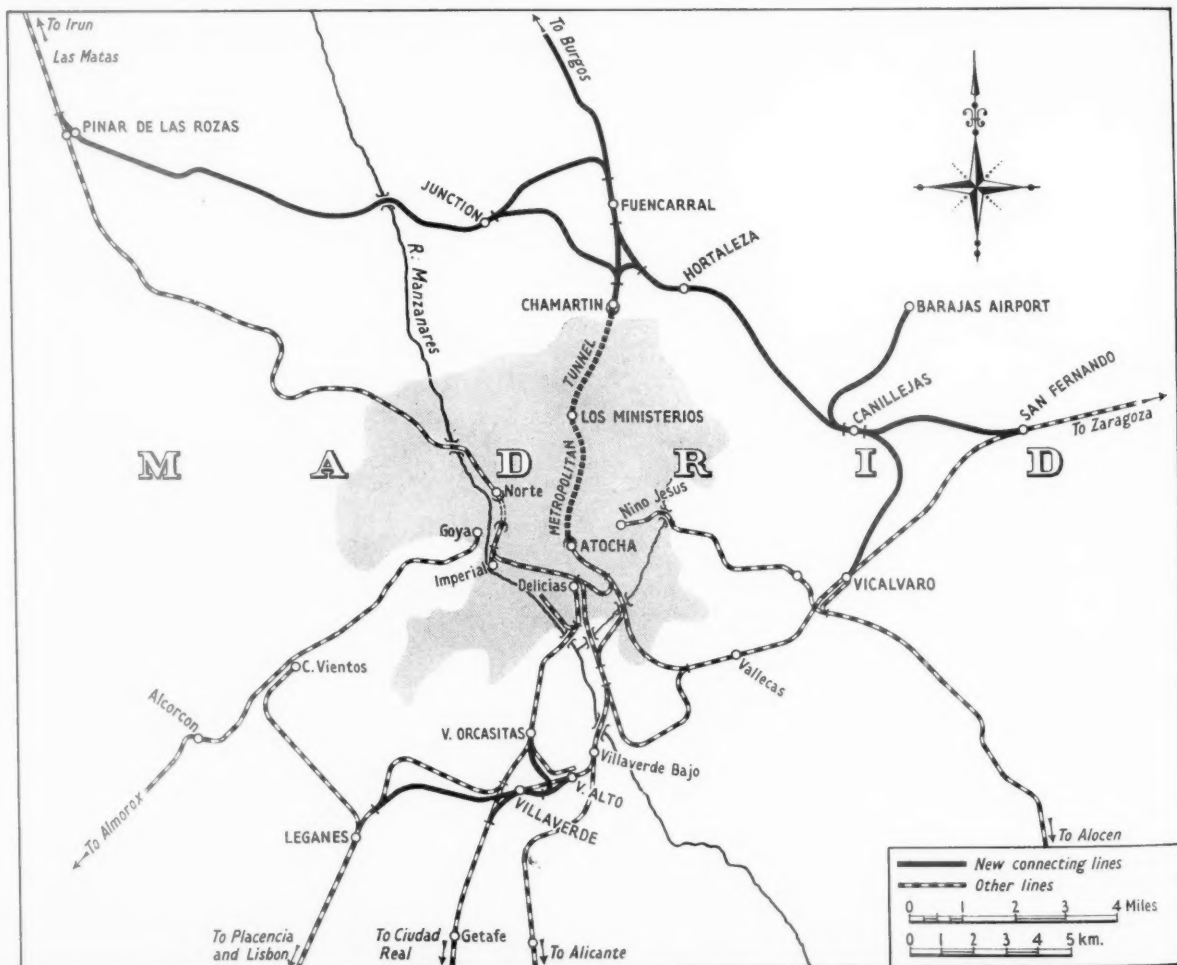
Atocha Station in the south by a tunnel which runs beneath the main thoroughfare of the city. When the scheme is complete all north-south passenger traffic will be diverted over this new underground line and all goods traffic from the north to the south will be diverted round lines on the outskirts of the city. Ultimately the Norte Station will be closed.

The Madrid-Burgos railway reaches Madrid at Fuencarral where there is a large freight yard. There is also to the north of Madrid the Chamartín Station for both passengers and goods traffic. These two stations constitute the northern head of the Madrid railway installations. The northern railway from Irún will reach these points by a new line which commences at Las Matas and later divides into two branches to serve respectively Fuencarral for goods

traffic and Chamartín for passengers. The passenger station of Chamartín is the starting point of the tunnel, 4½ miles long, which runs beneath the Castellana and Paseo del Prado to Atocha Station, and which when in full operation will constitute the north-south link for travellers.

All the northern zone passenger lines are planned to come together at Chamartín in the north; the remaining lines from the south, the east and the Extremadura will meet at Atocha Station, to the south of the city. As is shown on the map, two branch lines from the Fuencarral-Chamartín track will serve the Fuencarral Station and the goods installations of Chamartín and meet at Hortaleza. They will then form a by-pass line which after serving Canillejas will split to serve San Fern-

(Continued on page 100)



New connecting lines around Madrid

Third Class Sleeper Coaches for Indian Railways

Modified design affording sitting and sleeping accommodation for 64 passengers

By A. C. Bhattacharya, A.M.I.P.E.

Progress & Planning Superintendent, Kanchrapara Carriage & Wagon Shops, Eastern Railway of India



Gangway and single seats converted into berths for night use

TWO third class prototype "sleeper" coaches of modified design, with berths in three tiers have been built at the Kanchrapara Workshops of the Eastern Railway. They are the vestibule type with a centre gangway 22½ in. wide. Back-to-back transverse seating is arranged with treble seats on one side and single on the other side of the gangway.

The coach body structure is of strong timbered construction. It has straight sides and is 10 ft. 7 in. wide over panels. Exterior panelling is of ½-in. aluminium for the sides and ends. The interior is finished with ¼-in. plywood sheets. The four doors, two on each side, hinge inwards. Ceilings are made up from ½-in. plywood with a raised centre.

Interior

The interior design provides for two lavatories at each end of the car and a small luggage compartment next to one of the lavatories. The luggage compartment is arranged to carry one ton of luggage in two-tier racks. A collapsible gate is fitted at its entrance. This compartment is 6 ft. 2 in. long and 3 ft. 8 in. wide. It is intended to take charge of luggage not wanted en route.

The seating capacity is 64 passengers with sleeping accommodation for all. Sleeping accommodation for 48 passengers is provided in transverse berths

in three tiers, and that for the rest in longitudinal berths arranged in two tiers. The upper and lower transverse berths are fixed, and the middle berths fold down to form the seat backs for day use. The longitudinal upper berths are of the folding type and the two opposite facing seat backs below them drop down over the seats to be converted to a single berth.

All berths are of equal dimensions: 6 ft. 2 in. long and 2 ft. wide. A knee space of 2 ft. 2 in. has been provided between the seats.

Special Features

Much thought has been given to the design of these coaches to ensure the maximum of comfort. The following points have been borne in mind: (1) Adequate security catches on the doors and windows including window protection bars; (2) a separate protection at the bodyside end of each of the intermediate transverse berths which are within the window openings; (3) nine loose ladders in each coach to provide access to upper berths; (4) a complete partition 1 ft. 6 in. high above each of the topmost transverse berths; (5) a folding partition between the longitudinal upper berths so that one passenger is not interfered with by another; (6) suitable spacing of the suspension chains and straps for the upper and intermediate berths so as to act as protection devices; and (7) arm-rests of tubular construction on the gangway side.

Ventilation

Ventilation is by Oriental type ventilators in the roof. In the lavatory it is by an expanded-metal frame in the lavatory flat ceiling and louvre frame with air vent above the window.

The cross upper berth partition is constructed of B.R.C. netting of 3-in. × 1-in. rectangular mesh framed in timber to provide for free circulation of air. The partitions for the



Baggage cubicle, showing strong lock and racks for heavy articles

luggage compartment and the lavatories, the transverse partitions are of blockboard construction. Flooring consists of oxy-chloride flooring composition laid on "G.I.P." pattern floor boards.

A box-type seat for the attendant is equipped with lockers below and above.

Lavatories

Each car has four lavatories, located at the ends. The inside walls of the lavatories are lined with Eternit Granite sheets. The equipment in the lavatories includes "D"-type wash basins, squat pans, wall protector, mirror with frame, swing-arm towel rail, coat hooks, bottle openers, toilet racks, lota shelf, receptacle for lota, and hand hold. The fittings are either of stainless steel or chromium plate finish.

Two octagonal washbasins with frameless mirrors above and fitted with lever-type self-closing cocks are provided in the lavatory walls of two lavatories, one at each end, on the compartment side.

A water supply is provided in two overhead tanks of aluminium alloy, each with a capacity of 120 gal.

Electrical Equipment

Lighting is by 23 roof lights with four 15-W. blue lights for night use. There are 16 16-in. sweep fans of close-mesh guard type.

Power for the electrical equipment is provided by a Stone 100-amp. Tonum axle-driven generator. Accumulators are of the standard Indian Railways double-battery parallel-block type. The lead-acid battery is of 300 Ah. capacity.

The inside and outside finish conforms to the Indian Railways standard practice.



Three-tier arrangement of transverse berths

The exterior is finished in gulf red enamel with the crest of the railway on the bottom panel on both sides. In the interior light buff and light brown enamel are used in contrasting positions. The ceiling has a white matt finish. The seats and berths are finished in brown and seat partitions are in light buff enamel.

Principal particulars are as follow:—

Passenger capacity (seats and berths)	64
Gauge	5 ft. 6 in.
Length of body	68 0
Width	10 7
Knee space	2 2
Depth of seat	2 0
Width per passenger	1 4
Height of seat	6 2
Length of berth	6 2

R.E.N.F.E. Reorganisation of Lines around Madrid

(Concluded from page 98)

ando and Vicálvaro on the Saragossa line. This will enable goods traffic to pass round the city on the east as well as serving new industrial areas in that vicinity. The branch line to the Barajas Airport runs from Canillejas.

In the south of Madrid, the Ciudad Real and Badajoz line is being adjusted to enable the placing of a new station, through which the eastern line will pass and will complete the link-up in the circular service. The movement of goods traffic from the Northern and Madrid-Burgos lines around the capital to the south and the eastern lines is expected to assist materially in the establishment of industrial areas in the district. It is expected that it will be possible to replace the southern by-pass line and thus free this section of Madrid from railway goods installations.

The substructure of Fuencarral and Chamartín Stations is almost complete, as well as the link-up of both stations

and Las Matas. Considerable progress has also been made on the approaches to Chamartín Station.

An important feature of the scheme is the tunnel beneath the city and the very large station which has been constructed about midway along its length. This station—Los Ministerios—is formed by twin vaults, each 65 ft. in span and 350 yd. in length. It is provided with a double track and two platforms, each of which is 20 ft. wide. Provisional approaches have been completed to the station, but the final work in this connection and the surface building has still to be done.

WITHDRAWAL OF PASSENGER SERVICES FROM EASTERN REGION WAYSIDE STATIONS.

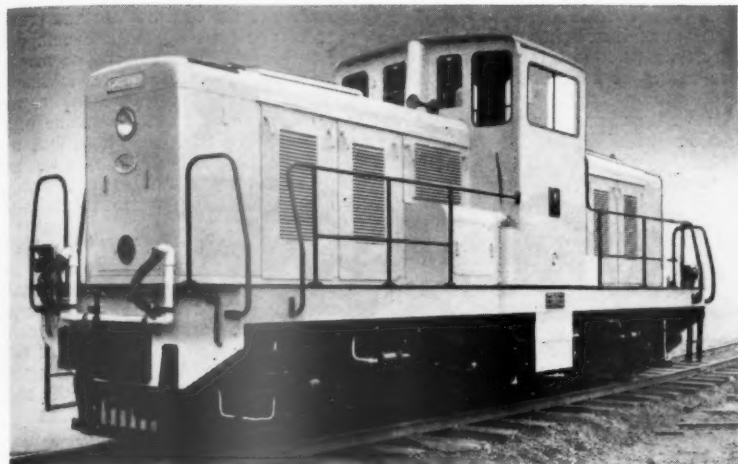
—The passenger service is to be withdrawn on February 2 from the following stations in the Eastern Region of British Railways: Haxey & Epworth and Walkeringham, between Doncaster and Gainsborough; and Sturton and Blyton, between Retford and Barnetby. Passengers will be catered for at Misterton and

Gainsborough stations and by bus services operating in the area. C. & D. services for parcels traffic will continue to be available. Facilities for the acceptance of parcels for despatch or awaiting collection will be available; for Haxey & Epworth at Haxey goods depot; for Walkeringham at Misterton; for Sturton at Gainsborough; and for Blyton at Blyton goods depot.

SHOWROOM ON RAILS TO DISPLAY ELECTRICAL APPLIANCES.—In collaboration with the Scottish Region of British Railways, a Glasgow firm is displaying its goods at Inverness, Aberdeen, Dundee, and Oban in a railway coach. The 60 ft. long vehicle has been specially fitted out as a travelling showroom at the Scottish Region Cowlairs works to display washing machines and other electrical appliances for the home. The showroom opened the tour at Inverness Station on January 19 and was on display at Aberdeen on January 20 and 21, at Dundee West on January 22 and 23 and will be at Oban tomorrow, January 24. In Glasgow the display will be seen at St. Enoch Station on January 27. All the arrangements have been made to the requirements of Superbe Electrics Limited, Glasgow.

400-h.p. Diesel-Electric Mineral Locomotive

*Bo-Bo version of "Janus" design for new
3-ft. 6-in. gauge line in British Guiana*



Leading particulars and dimensions of the locomotives are as follow:—

Wheel arrangement	Bo-Bo
Total adhesive weight of loco	48 tons
Maximum axle load	12 tons
Starting tractive effort	28,000 lb.
Continuous tractive effort at 7.3 m.p.h.	12,800 lb.
Gear ratio	10:53:1
Gauge	ft. in.
Wheelbase, total	3 6
Wheelbase, bogie	23 6
Bogie pivot centres	8 0
Wheel dia.	15 6
Length over headstocks	3 0
Total height over cab roof	31 9
Total width of cab	13 3
Fuel capacity	8 4
Traction motors	400 imperial gal.
Traction generators	4 BTH type 119Z with double reduction gearbox
Diesel engines	2 BTH type RTB. 7426
Continuous rating (each)	2 Rolls-Royce type C8NFL
Total input to generators	202 h.p. at 1,800 r.p.m.
Maximum speed	370 h.p. 30 m.p.h.

400-h.p., 3-ft. 6-in. gauge twin-engine, diesel-electric Bo-Bo locomotive for the African Manganese Company railway in British Guiana

BASED on the twin-engine "Janus" 400-h.p. six-coupled locomotive, three diesel-electric Bo-Bo locomotives with 12-ton axleload are being built at its Sheffield works by the Yorkshire Engine Co. Ltd., for the 3-ft. 6-in. gauge railway system which will extend approximately 30 miles from a manganese mining project in north-west Guiana to the river shipping station.

The order was placed by the African Manganese Co. (Mines Management) Ltd., through its consulting engineers, Messrs. Livesey & Henderson.

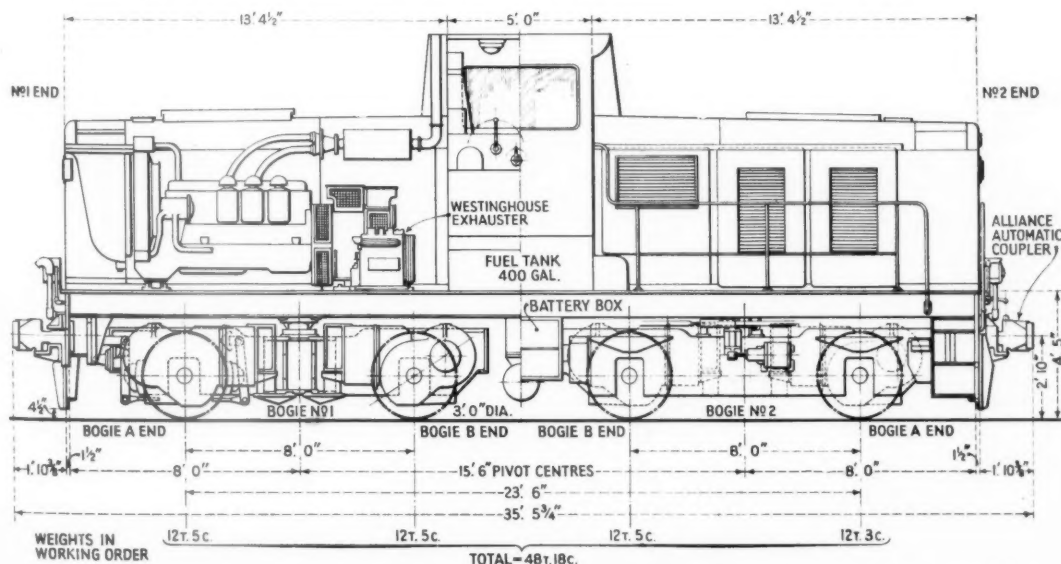
As mentioned briefly on page 703 of our issue of December 12, 1958, the maximum load to be hauled is 370 tons. The average speed for the loaded journey, which includes gradients up to 1 in 100, will be 14 m.p.h. The return trip with each empty train will take about 1½ hr. at an average speed of 22 m.p.h.

The bogies are of the steel plate frame type with fabricated centre and end stretchers. The centre stretcher incorporates the housing for the traction pivot centre and the nose-suspension units of traction motors.

The wheels have rolled steel centres with renewable tyres. Timken grease lubricated roller bearing axleboxes and steel axlebox guides are fitted with manganese steel liners.

The body is fabricated from steel plates and sections bolted down to a base frame continuously welded to the top plate of the underframe. It consists of two main power and equipment compartments and a central driving cab. The power compartments are designed to give the best possible outlook from the cab and they are provided with removable lift-off doors to give easy access to the diesel engines and generators.

The underframe is a welded fabrication of rolled steel sections with a continuous floor plate. The structure



Outline drawing with No. 1 end in section to show one power unit, and unusual arrangement of driving motors with spiral-bevel primary reduction gearboxes

is stiffened at the bogie centres to absorb the traction forces. Lifting and jacking brackets are incorporated. The coupler end boxes are designed to withstand heavy buffing loads and the complete structure is designed to prevent undue deflection between bogie centres.

The totally enclosed, steel-plate driver's cab is centrally mounted between the two bonnets. It has good ventilation, and heat insulation is ensured by a double skin roof with an air gap and fibreglass side insulation. Two entrance doors, on diagonally opposite corners, provide access from the platforms. There is safety glass to all windows. The side windows are of the sliding type and the inner driving windows at each end of the cab are half-drop opening type. Windscreen

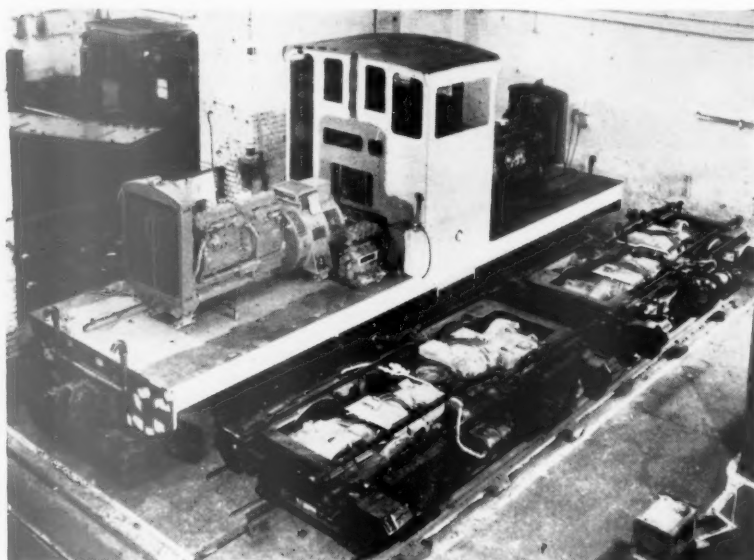
there is an Alliance automatic coupler with Spencer Moulton rubber draft gear.

The fuel tank is a rigid welded fabrication of steel plate and flat bar. Internal baffles are provided and the top plate forms the support for the cab. "Emco" type fillers are incorporated on diagonal corners.

A Simms headlight, with adjustable reflector, is fitted into the superstructure nose casing at both ends of the locomotive.

Low-oil-pressure alarms work in conjunction with an engine shut-down device. There are also high-coolant-temperature alarms.

Two 77 A.h. 24 V. lead-acid batteries for starting, by motoring the main generator, and lighting, are carried in the battery boxes suspended beneath the underframe.



Frame and bogies before erection, showing longitudinal position of motors in unit construction with gearboxes

wipers are fitted to the main driving windows. A cab seat is provided at each side.

Power Brakes

The locomotive is equipped with Westinghouse vacuum-controlled straight air brake. Fully compensated rigging with clasp brake blocks is provided with facilities for adjustment. The brake blocks are of the renewable shoe type. Simultaneous and proportional brake application on locomotive and train is ensured by a vacuum air proportional valve. Belt driven exhausters and compressors are fitted for either two-end or single-end working.

An independent engine speed-up device (to suit exhauster requirements) is incorporated in the throttle control. "Dead man's" equipment is provided, also adequate vacuum and air reservoir capacity. Westinghouse air operated sanding is fitted for operation in either direction, by hand lever on the control cabinet. At each end of the locomotive

The two Rolls-Royce C8NFL diesel engines in each locomotive are of the vertical liquid cooled normally aspirated, four-stroke direct-injection-type. The bore and stroke are 5½-in. and 6-in. respectively. The swept volume is 990.18 cu. in. and the compression ratio, 16:1. Continuous traction rating of each unit, 202 b.h.p. at 1,800 r.p.m. After deducting the power required for driving auxiliaries there remains 185 h.p. for traction, making the total input to the main generators, 370 h.p.

A battery-charging generator of 960 W. output at 24 V. is mounted on each engine and belt driven with the radiator fan from a pulley on the free-end of the crankshaft. The belt-driven air compressors are also engine-mounted. Each has a capacity of 15 cu. ft. volume of air per min.

Of British Thomson-Houston Co. Ltd. design and manufacture, the two flange-mounted type RTB.7426 traction generators have insulation entirely of

mica, glass, and asbestos of the highest grade for operation at 215 V. The drive end of the hollow cylindrical armature spider is carried direct on the engine coupling spigot which drives on the maximum diameter of the spider to reduce torsional vibrations.

Access to the commutator and brush-gear is provided by large openings in the fabricated steel barrel-type magnet frame sides. Repair work is simplified by making the individual magnet poles removable from the frame without displacing the armature, but the latter can be removed when necessary without disturbing the bearings as these are of the cartridge type, oil-lubricated and self-aligning.

Each of the four BTH type 119Z, four-pole series-motors is insulated for 600 V. and self-ventilated. The magnet frame is a steel fabrication flange-mounted to the gear case assembly.

The gearbox casing consists of two parts which are joined on a line across the bore of the axle way and the bore of the intermediate shaft bearings.

High Speed Towing Allowed

The intermediate shaft self-aligning bearing cartridges may be jacked sideways to disengage the first-reduction spiral bevel drive. This operation can be carried out without opening the gearbox, and allows high-speed towing of the locomotive. The torque reaction of the complete motor and gearbox assembly is taken by a link to the locomotive structure, containing a resilient rubber bush at each end.

Two operator's stations are placed one at each side of the cab. The direction of movement of the locomotive can be selected only while the power lever is in the idling position due to the provision of mechanical interlocks. The power lever regulates the diesel engine output and is also interlocked with the electrical control.

The power controller is a cam operated unit mechanically linked to the engine governor, with silver tipped contacts through which the motor conductors are energised.

A battery series-parallel switch in the cab enables a series connection to be made for engine starting.

Each complete power unit and radiator is carried resiliently on special four-point mountings. There is no sub-frame. All materials used in the locomotive are to British Standard Specifications and all screw threads, other than those on the engine and generator, are British Standard Whitworth form.

Sub-contractors include:—

Diesel engines	Rolls-Royce Limited
Generators, motors, and control gear	British Thomson-Houston Co. Ltd.
Automatic couplings	English Steel Corporation Limited
Rubber draft gear	George Spencer Moulton & Co. Ltd.
Sanders, brakes, and vacuum gear	Westinghouse Brake & Signal Co. Ltd.
Battery	D.P. Battery Co. Ltd.
Charging dynamo	Simms Motor Units Limited
Silencers	Maxim Silencers Limited
Sliding cab windows	Beckett, Laycock & Watkinson Limited
Alarm panels	Teddington Industrial Equipment Limited

New Signalbox and Re-alignment at Shaftholme Junction

Re-aligned junction allowing higher running speeds, controlled from new mechanical box incorporating notable constructional features



Exterior of the new Shaftholme signalbox showing ribbed aluminium alloy sheathing to lower portion

DETAILS were given in our issue of February 28, 1958, of the work being undertaken at Shaftholme Junction, four miles north of Doncaster on the East Coast main line, the meeting point of the former Great Northern and North Eastern Railways, now included in the North Eastern Region of British Railways. This has been carried to completion and a new signalbox provided in the fork of the main line and the Askern branch, to control the junction, and the other a little to the north where the spur connection to the Barnby Dun line leaves the main line.

Higher Speeds Through Junctions

As the junction was scheduled for complete renewal in 1957 it was decided to take the opportunity to carry out some strengthening of banks and re-align the approach from the south to allow the long-existing speed limit of 60 m.p.h. to be raised to 100 by getting rid of the short transitions and limitations of cant through the switch and crossing work in the centre of the original 70-ch. curve. To do this involved a track displacement towards the up side of 8 ft. 3 in. with widening of the formation and strengthening of the bank over the length of the re-alignment. This enabled 231-ft. transitions and a 165-ch. curve to be provided, with a $\frac{1}{4}$ -in. cant to the circular portion. Renewal and re-alignment, including re-ballasting and lifting to

provide an additional 4 in. to 6 in. of ballast under the main line was effected in approximately 14 hr. one Sunday. The fine alignment canting and packing to final level were completed the following week.

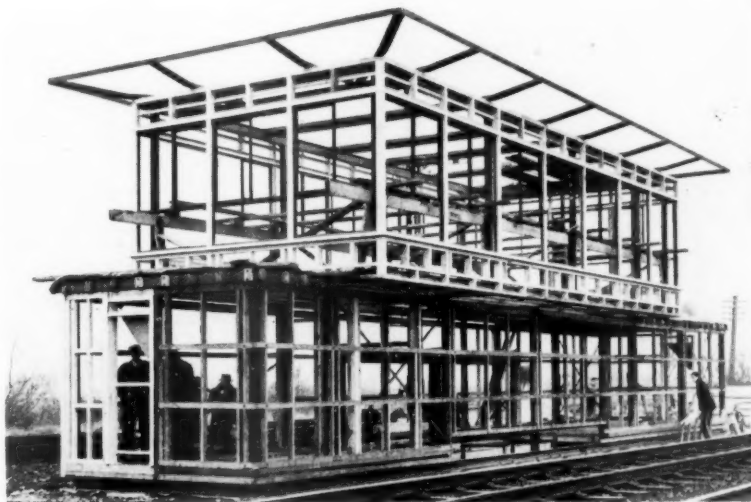
The Barnby Dun line crosses the main line a short way south of the

junction and was itself due for renewal. The main line passed through the central span of three; the short ones on each side were empty. The bridge had wrought-iron side and central girders with the track laid on longitudinal timbers on a concrete floor. The old intermediate piers have been removed and new abutments and wing walls provided carrying a single span superstructure of three girder type with joists-in-concrete deck and ballasted track, giving extra headroom of 2 ft. 5 in. to allow for future overhead equipment for electrification at 50 cycles. This in turn involved lifting the branch at a distance of 500 yd. in each direction to avoid too severe a gradient, with the track on the bridge about 3 ft. higher than before. In designing the new abutments, wing walls and superstructure full allowance was made for possible subsidence arising from adjacent mine workings.

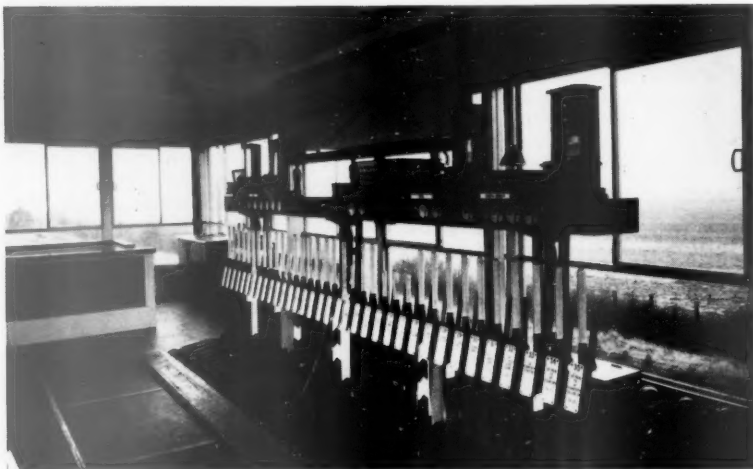
Consolidating Main Line

On the main line maintenance of the top for $\frac{1}{4}$ mile south of the bridge was not easy because of the combined effect of settlement caused by water-logged borrow pits nearby and soft clay overlaying the running sand at various depths composing the embankment foundations. Heavy inert material was placed in the borrow pits and berms raised against existing slopes, with ditches cut where necessary to improve drainage.

The main line has an additional width of formation to take deeper ballast and give space for overhead equip-



Steel framing for new signalbox, mounted on concrete raft with facilities for lifting to counteract subsidence effects



Interior of new signalbox showing, all-round glazing providing good visibility

ment and cable ducts, with space also for further lifting should colliery subsidence necessitate. Additional ballast depth is desirable to minimise the more punishing effect of electric locomotives and stock running at higher uniform speeds, both on earthworks and track materials. About 80,000 tons of filling material have been placed in the borrow pits and berms. Half has been used to remedy subsidence on the Barnby Dun line and came from a nearby colliery tip. The other half is slag brought from Scunthorpe, unloaded by mechanical means from a mineral line half a mile away and brought to the site under special arrangements.

The new signalbox, open con-

tinuously, was designed in the Architect's Section of the Chief Civil Engineer's Department of the Region and the general contractors were Hemsworth Brothers of Doncaster, with Ward Bros. (Sherburn) Ltd. as main sub-contractors for the fabrication and erection of steelwork. The design provided for a light steel framework on rigid steel ring beams supported on a reinforced concrete raft and dwarf wall formed with pockets to take jacks for lifting the whole 15-ton superstructure to compensate for subsidence. The roof is of waterproofed wood-wool insulating slabs arranged to form a canopy all round and give the signalmen some protection against sun glare and minimise the obscuring of vision

by driving rain. The windows give a full view in every direction and are arranged to be cleaned from within.

The building is covered externally with vertically ribbed aluminium alloy sheeting over the whole of the lower portion, with red cedar boarding above and below the windows in the upper, reducing maintenance costs to the minimum. The relay room is lighted naturally from dome lights in the flat roof.

Internally the walls and ceilings are lined with Limpet and Asbestolux sheeting with air insulation between this and the external cladding. The Asbestolux ceiling panels are fitted with clips to allow removal and afford access to electric conduit and cabling.

Timber Treated with Fire Retardant

All floors are of timber suspended from steel framing and suitably treated with fire retardant giving "Class 1" flame spread. Decoration throughout is in pastel colour with dark blue linoleum for the floor in the operating room and azure blue thermoplastic tiles in the relay room. Skirting round the box at floor level is centrally heated from a low pressure boiler system and the electric lighting is designed to give low-wattage subdued spot lighting to the instruments and equipment within the building.

A 35-lever mechanical type locking frame operates the existing points and semaphore signals, pending the re-signalling of the area under the modernisation plan, for which a scheme is in due course to be developed.

The works were carried out to the requirements of the Chief Civil Engineer, Mr. A. Dean, and of the Signal Engineer, Mr. A. F. Wigram, of the North Eastern Region.

Main-Line Diesel Operation in New South Wales



Air-conditioned "Newcastle Express" hauled by Clyde-G.M. diesel-electric locomotive at Hawkesbury River

RAILWAY NEWS SECTION

PERSONAL

Mr. John A. Hay has been appointed Joint Parliamentary Secretary, Ministry of Transport & Civil Aviation. He succeeds Mr. A. M. S. Neave, who becomes Parliamentary Under-Secretary of State, Air Ministry.

Mr. J. G. P. Hamilton, A.M.I.Mech.E., M.I.Loco.E., Chief Mechanical Engineer,

appointed Chief Mechanical Engineer in August, 1955.

Mr. J. S. Scott, Works Manager, Gorton Locomotive Works, North Eastern Region, British Railways, has been appointed Works Manager, Darlington Locomotive Works.

In our last week's issue, as a result of a printer's error, the year of birth of the

Mr. H. M. Hunter has been appointed Assistant (Special Duties) to the General Manager, Scottish Region, British Railways.

Mr. H. J. Castle, A.M.I.Mech.E., M.I.Loco.E., Assistant Chief, Mechanical Engineer, Rhodesia Railways, who, as recorded in our January 9 issue, has been appointed Chief Mechanical Engineer, was born at Derby in 1900. After serving 11



Mr. J. G. P. Hamilton
Chief Mechanical Engineer, Rhodesia Railways,
1955-59



Mr. H. J. Castle
Appointed Chief Mechanical Engineer,
Rhodesia Railways

Rhodesia Railways who, as recorded in our January 9 issue, is retiring in February, was born in London, in 1900, and was educated at Harrow. Mr. Hamilton spent three years at the Swindon Works of the Great Western Railway, after a period at the Stratford Works of the Great Eastern Railway. He joined the Rhodesia Railways, as a junior draughtsman in the locomotive department, in 1924. He became Assistant Mechanical Superintendent, Salisbury, in 1935, and was appointed Technical Assistant, Bulawayo, in 1936. In 1937 he was made Mechanical Assistant and, again acted as Assistant Mechanical Superintendent, Salisbury from November, 1937 until he was confirmed in that position in March, 1938. Mr. Hamilton was appointed Mechanical Engineer, Bulawayo, in October, 1938, and, after acting as Assistant Chief Mechanical Engineer, was promoted to be Deputy Chief Mechanical Engineer, in 1947. Between 1947 and 1954, he acted as Chief Mechanical Engineer on three occasions and was

late Mr. J. W. Watkins, Member of the British Transport Commission, was given as 1809. This should have been 1890.

Mr. A. W. C. Crossman, Assistant Chief Mechanical Engineer, South Australian Railways, has been appointed Chief Mechanical Engineer, in succession to Mr. A. A. Pryce, whose retirement was recorded in our November 21 issue.

Mr. Henry S. Wingate has been appointed a director of the Canadian Pacific Railway Company in place of the late Mr. Charles A. Dunning. Mr. Wingate is President of the International Nickel Company of Canada and a director of the Bank of Montreal.

Mr. H. G. Nelson, Managing Director of the English Electric Co. Ltd., has been awarded the 1959 Benjamin Franklin Medal of the Royal Society of Arts for his work in scientific industrial development.

years with the Midland Railway and subsequently London, Midland & Scottish Railway, he joined the Rhodesia Railways in 1928, as Technical Assistant (Mechanical). After serving in various grades, and holding acting appointments at Livingstone, Salisbury, Broken Hill and Umtali, he became Progress & Planning Officer in the Mechanical Department, Bulawayo, in 1938. In 1941 Mr. Castle was released for military service, as Progress & Planning Officer to the War Supplies Committee. Later that year he was appointed General Manager, Eritrea Railway, with the rank of major. He was demobilised in 1944 and, shortly afterwards, became Mechanical Engineer, Umtali. He became Assistant Chief Mechanical Engineer, Bulawayo, 1955.

Mr. T. A. Hooker, Industrial Agent in England, Canadian National Railways, has been appointed to a newly created position of Development & Research Officer, London.



Mr. G. W. French

Divisional Shipping Manager, Southampton, Southern Region, who has retired



Mr. C. S. Wood

Appointed Treasurer of the Eastern Region



Mr. A. T. Mathews

Appointed Assistant to the Vice-President (Traffic), C.N.R.

Mr. G. W. French, Divisional Shipping Manager, Southampton, Southern Region, British Railways, who, as recorded in our January 2 issue, has retired, joined the South Eastern & Chatham Railway, at Cannon Street, in 1912. After four years (1915-19) in the Royal Engineers, Mr. French served in the Traffic Department until 1931, gaining experience in all sections, including relief duties over several years in the Continental Inquiry Office at Victoria. He subsequently served on the Newhaven-Dieppe route freight working, and was transferred to Bricklayers Arms, when the London Freight Terminal for the Dover-Dunkerque Ferry opened in 1936. In 1940, when Continental services ceased, he transferred to Deptford Wharf, as Chief Clerk, dealing with bulk shipping and barge working. Mr. French returned to Bricklayers Arms two years later as

A.R.P. Controller, and, in 1945, was appointed Goods Agent, Worthing. Twelve months later he was appointed Agent, Jersey, responsible for the Southern and Great Western Railway traffic. In March, 1949, he became Assistant District Marine Manager, Southampton, and was appointed District Marine Manager in 1956; an appointment later redesignated Divisional Shipping Manager.

Mr. C. S. Wood, A.C.I.S., Assistant Treasurer of the Eastern and North Eastern Regions, British Railways, who, as recorded in our January 9 issue, has been appointed Treasurer, Eastern Region, began his railway career on the former Great Central Railway in 1920. After six months in the Locomotive Running Superintendent's Office, Gorton, he joined the Chief Cashier's Office, Manchester. When the Manchester Cash

Office was closed, in 1930, Mr. Wood was transferred to the Registration Office, Liverpool Street, L.N.E.R. Two years later he entered the Secretary's Office at Marylebone, where he subsequently became Personal Clerk to the Secretary and Finance Committee Clerk. In 1938, when Sir Ronald Matthews became Chairman of the L.N.E.R., Mr. Wood undertook the additional duties of Chairman's Private Secretary. In January, 1943, he was appointed Personal Assistant to the Chairman and relinquished his other secretarial duties. In January, 1948, Mr. Wood was appointed Assistant Treasurer, Eastern & North Eastern Regions, and has been Acting Treasurer since December, 1957.

Mr. A. T. Mathews, Special Assistant (Personnel), in the Office of the Vice-President, Traffic, Canadian National



Mr. G. R. Ralston

Appointed Traffic Manager of the Manchester Ship Canal Company



Mr. W. F. Thomas

Appointed Manager, Victorian Government Tourist Bureau



Mr. H. J. L. Dolan

Appointed Assistant Mechanical Engineer, Rhodesia Railways

Railways, who, as recorded in our January 2 issue, has been appointed Assistant to the Vice-President (Traffic), joined the C.N.R., at Toronto, in 1940, in the office of the Regional Vice-President & General Manager. He later worked in the Motive Power and Real Estate Departments. He joined the Royal Canadian Air Force in 1942, and served with Bomber Command. After demobilisation, he obtained a B.A. honours degree at Toronto University, in 1948. Returning to the C.N.R. in 1949, he set up and supervised the railway's Employment & Placement Service in Toronto. He was transferred to Montreal in 1953 to work on special assignments in the Personnel Department, including co-ordination of the C.N.R. system-wide recruitment programme for university graduates, technical personnel and others related to management development. Mr. Mathews was appointed Personnel Assistant in 1954 and Co-ordinator of the C.N.R. Staff College the following year. He subsequently became Special Assistant (Personnel) in the office of the Vice-President, Traffic.

Mr. Gavin R. Ralston, Assistant Traffic Manager, Manchester Ship Canal Company, who, as recorded in our January 2 issue, has been appointed Traffic Manager, was born in 1912, and educated at Lancing College. He joined James Finlay & Co. Ltd., Eastern merchants, in 1933 and, the following year, was transferred to the Colombo Branch. During the 1939-45 war Mr. Ralston served in the Rifle Brigade in Egypt; with Movement Control, Royal Engineers; as Military Liaison Officer, Ministry of War Transport, Alexandria and on the General Staff, G.H.Q., Cairo, until 1945. He held the rank of Major. In 1946 he rejoined James Finlay & Co. Ltd. as Manager, Shipping & Air Departments, Ceylon. In 1949 he resigned, due to ill health, and returned to the United Kingdom. Mr. Ralston joined the Manchester Ship Canal Company as Assistant Traffic Manager in March 1950.

Mr. W. F. Thomas, a member of the Victorian Railways Public Relations & Betterment Board, who, as recorded in our October 17 issue, has been appointed Manager of the Victorian Government Tourist Bureau, has served for 30 years with the Board. He has been concerned with the organisation of Reso (Natural Resources) Train tours, and has had close contact with the Holiday Train Association, and with railway traffic work.

Mr. H. J. L. Dolan, A.M.I.Mech.E., M.I.Loco.E., Mechanical Engineer, Bulawayo, Rhodesia Railways, who as recorded in our January 9 issue, has been appointed Assistant Chief Mechanical Engineer, was born in 1904, at Durban. He served six years with the South African Railways, before joining Rhodesia Railways as a junior draughtsman, in 1927. In 1938, he became Senior Draughtsman and, after acting as Progress & Planning Officer and as Mechanical Engineer, during the 1939-45 war, he was appointed Progress & Planning Officer in 1944. He became Mechanical Engineer (Bulawayo), in 1947. Mr. Dolan has acted as Assistant Chief Mechanical Engineer, on a number of occasions, and also as Chief Mechanical Engineer. Except for two short periods at Umtali, he has always been stationed in Bulawayo.

Mr. P. A. Clifford, Senior Engineering Assistant, Chief Civil Engineer's Office,

Kings Cross, Eastern Region, British Railways, has been elected an Associate Member, Institution of Civil Engineers.

THE LATE MR. J. W. WATKINS

The funeral service for Mr. J. W. Watkins, Member of the British Transport Commission, was held, on January 15, at St. Mary's, Watford. The Reverend J. G. Downward officiated. In addition to family mourners, the following were among those who attended:—

British Transport Commission

Sir John Benstead, Mr. S. E. Parkhouse (retired), Mr. F. Grundy, and Sir Reginald Hill (retired).

London Midland Region

Messrs. David Blee, L. W. Cox, G. T. Harris, H. Aidley, J. Taylor Thompson (retired), A. B. McLeod, Captain J. D. Reed, Messrs. J. Neal, M. T. Howard Williams, F. Fiske, A. Kerr, L. A. Metcalf, S. Hunt, Mr. G. R. Smith (retired), F. G. Hutton, and E. C. Kemp (representing the Euston Rifle Club).

Western Region

Mr. K. W. C. Grand.

London Transport Executive

Sir John Elliot.

British Transport Hotels & Catering Services

Mr. F. G. Hole.

Rhodesia Railways

Mr. O. S. Naylor.

A memorial service was held at St. Pancras Parish Church, London, on January 21. Father S. P. Vincent, Curate of St. Pancras, officiated, and an address was given by Canon E. D. P. Kelsey, Vicar of Christ Church, Watford. Sir Brian Robertson, Chairman of the British Transport Commission, read the lesson. It is hoped to publish the names of those present in next week's issue.

THE LATE MR. WYNNE DAVIES

A memorial service to the late Mr. G. Wynne Davies, Commercial Officer, Southern Region, British Railways, was held, on January 17, at the Parish Church of St. Michael, Horton, Bucks. The service was conducted by the Reverend David Prentis, Rector of the Parish, assisted by the Reverend T. Russell-Potter, Rural Dean of Burnham. In addition to family mourners the following were among those who attended service:—

British Transport Commission

Mr. D. S. M. Barrie, Mr. J. L. Harrington, and Mr. E. A. W. Dickson.

Southern Region

Mr. and Mrs. C. P. Hopkins, Messrs. D. McKenna, S. A. Fitch, W. H. F. Mepsted, H. C. Lang, R. E. Sinfield, Mr. and Mrs. F. D. Y. Faulkner, W. S. M. Stapleton, Mr. and Mrs. P. A. White, Messrs. A. Earle Edwards, H. E. Barber, W. C. Collins, W. H. Scutt, G. R. Robinson, T. E. Jackson, A. E. Bishop, G. Browning (representing Cadets' Association), H. B. Taylor, H. G. N. Read, J. Grace, F. P. B. Taylor, E. J. Mattocks, J. D. Atkins, W. O. Spurgeon, B. T. Wright, A. L. Rendall, C. W. G. Elliff, A. H. Whiffen, W. D. Bartlett, R. Demaid, Bragg, Seymour, Harris, Greenfield, Galloway, Ward, Boddy, Mrs. Keys.

Eastern Region

Mr. F. G. Crabb.

London Midland Region

Mr. George Dow and Mr. A. J. Johnson.

Western Region

Mr. A. E. Flaxman and Mr. C. J. Rider.

London Transport Executive

Mr. H. F. Hutchison.

Pullman Car Company

Mr. F. D. M. Harding.

British Road Services

Mr. A. J. Wright.

Also Present

Mr. J. Bannard, Unilever Limited; Lt.-Col. Brooke-Hitching; Mr. Bryce-Smith, Unilever Limited; Mr. C. Clark, Bowater Paper Corporation Limited; Mr. J. Earle, Crow Catchpole & Co. Ltd.; Mr. Gardiner, F. W. Woolworth & Co. Ltd.; Mr. H. J. Grant, Thos. Cook & Son Ltd.; Mr. A. Griffiths, Newspaper Proprietors Association; Mr. A. Hood, S.P.D. Limited; Mr. A. Melton, Wiggins Teape & Co. Ltd.; Mr. G. Page, J. Lyons & Co. Ltd.; Mr. Taylor, Esso Petroleum Co. Ltd.; Mr. W. Stick, P. & O. Steam Navigation Company; Mr. Widnall, United Glass Bottle Manufacturers Limited; Mr. T. Tritton (representing Mr. B. W. C. Cooke, Editor of *The Railway Gazette*).

Mr. T. D. Martin, Foreman, Class I, London Transport Executive, was awarded the B.E.M. in the New Year Honours.

We regret to record the death on January 16, at the age of 60, of Sir Claude Gibb, K.B.E., Chairman of Parsons & Co. Ltd. Sir Claude Gibb was to have received the 1959 James Watt International Medal of the Institution of Mechanical Engineers, on January 23. Arrangements are being made for the transmission of the medal to Lady Gibb.

Mr. R. A. Riddles, Deputy Chairman, Stothert & Pitt Limited, and a former Member of the Railway Executive (1947-53), has been appointed Chairman. He succeeds Sir Llewellyn Soulsby, Chairman since 1946, who has resigned to devote more time to his other interests, Sir Llewellyn Soulsby will continue as a director. Mr. T. W. Y. Alderton has been appointed a director.

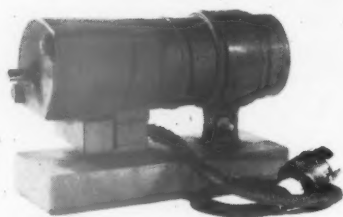
Mr. P. G. Byrne has been appointed to the newly created position of Commercial Manager, Coras Iompair Eireann. Mr. D. Delaney, Assistant Commercial Superintendent, C.I.E., will succeed Mr. J. J. O'Dwyer, Commercial Superintendent, who will retire on January 31. Reference is made to these appointments elsewhere in this issue.

Mr. G. L. Nicholson, Assistant to the General Manager (Modernisation), Scottish Region, British Railways, has been appointed Divisional Traffic Manager, Designate, Glasgow & South West Division, Scottish Region, and Mr. J. M. Fleming has been appointed Divisional Traffic Manager, Designate, East Coast Division. Their headquarters will be at Glasgow and Edinburgh respectively. Editorial reference is made to the appointments elsewhere in this issue.

The Pressed Steel Co., Ltd., of Cowley, Oxford, has appointed the following as directors of their newly formed subsidiary, Pressed Steel Société Anonyme, Brussels: Mr. J. R. Edwards, Managing Director, Pressed Steel Co., Ltd.; Mr. F. E. Cairns, Deputy Managing Director, Pressed Steel Co., Ltd., and Mr. T. M. Connelly, Patent Attorney, Pressed Steel Co. Ltd. Mr. Cairns has been appointed Chairman and Mr. Connelly Managing Director of Pressed Steel Société Anonyme. Reference to the new company is made elsewhere in this issue.

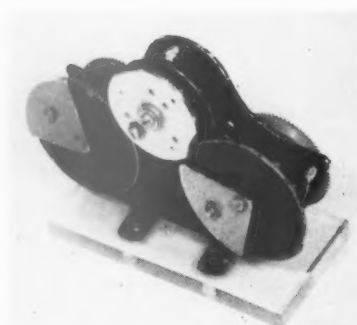
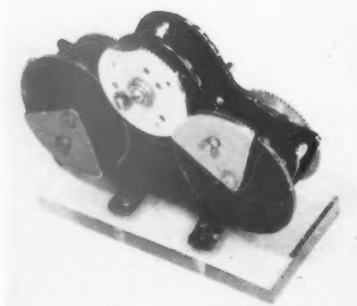
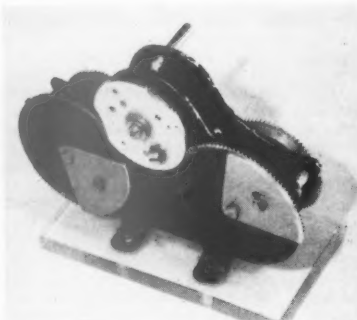
Dr. Mario Knüsli has been appointed Vice-Director, Commercial Department, Swiss Locomotive & Machine Works.

NEW EQUIPMENT AND PROCESSES



Gear Mechanism

THE Revlock Actuator is a simple and ingenious mechanism by which a non-reversing motor can be used to provide a limited two-way motion with positive locking at both ends of the travel. Developed to control aircraft flaps, the device also is suitable for use in conjunction with rail-



way signal arms, doors, gates, and valves. The half-tones in the first column on this page show (top) the actuator and, below, a model in the three positions which illustrate its function.

In the top illustration, the actuating wheel in the centre has just begun its clockwise movement. The teeth of the anti-clockwise rotating right-hand wheel will engage one of two concave cam-faces which separate the toothed portions of the actuator wheel. This locks the actuator wheel in position and automatically switches off the motor which slows under its own momentum until the wheels reach the position shown in the second illustration.

When power is restored, the motor can pick up speed under no load while the right-hand cam-sector again slides along the concave face of the actuator wheel. As the cam disengages, with the motor producing full torque, the teeth of the clockwise-rotating left-hand wheel engage those of the actuator (see bottom half-tone), starting it on its return travel. This cycle of operation can continue indefinitely.

No reversing gear is required, no positive braking of the motor, no clutches. Single-phase a.c. or shunt-wound d.c. motors with their weak starting torque can be used to advantage.

Further details may be obtained from the manufacturer, C. F. Taylor (Engineers) Limited, Wokingham, Berks.

Versatile Servo Test Equipment

A PROCESS response analyser now is available to cover the range 1 cycle in three hours to 100 cycles per second. Although primarily designed to cover long-run analysis, the versatility of the new equipment makes it equally suitable for use, say, in connection with obtaining starting information relating to railway locomotives. Accurate measurements are claimed on any slow and medium-speed dynamic system even under severe non-linear and "noisy" conditions.

The new tester provides design information for new control systems and enables tests to be carried out before production stage is reached. It also enables all servo and control systems to be tested regularly without halting production.

Information is provided by high-accuracy phase/amplitude response (Nyquist) diagrams over the entire range of frequencies to which the system will respond. The instrument's high measuring sensitivity enables it to operate direct from transducer signals.

The analyser is a double-console instrument incorporating a very low-frequency oscillator and a display unit (obtainable separately) covering a frequency range of six decades. Two wide-scale meters display "in-phase" and "quadrature" components of the wanted signal. The design is based on analogue computer and gated integration techniques, and standard computing amplifiers and multipliers are incorporated. Push-buttons provide "prime," "run," and "hold" facilities, conditions which also may be controlled externally by, for example, a computer control panel.

Delivery is to order, in from three to six months, from the manufacturer, Solartron Electronic Group Limited, Thames Ditton, Surrey.



Ball-Bearing Slewing Rings

BALL-BEARING slewing rings are claimed to show advantages when used in rolling-stock bogies, swivelling cranes and excavators, welding positioners, and rotating hoppers. They incorporate a bearing which can transmit radial and axial forces acting in either direction, besides taking up tilting moments. In the absence of a centre-pivot, they can be installed with low mounting height. This is important for rail-mounted equipment restricted in overall height.

The Roballo slewing ring is stated to be able to carry a high tilting moment on a small diameter. It is made in various sizes.

The absence of a centre-pivot or nut obviates adjustments and leaves the central space free for other components or as a ready means of access to places formerly reached with difficulty. A toothed rim is directly machined into one of the rings to accept drive for rotating motion. This may be a spur-gear, with internal or external teeth, or a worm or bevel gear. The inner and outer rings are easily mounted on the adjacent framework by bolts spaced at uniform intervals about the periphery.

Further details may be obtained from the manufacturer, Roballo Engineering Co. Ltd., 43, Dover Street, London, W.1.

Insoluble Anode

AN anode consisting of a core of titanium coated with a layer of platinum now is available which provides cathodic protection against aggressive water.

The anode can operate at a very high current density. Accordingly, it is effective in limited spaces such as pipelines and condenser water boxes. In these, one anode is installed in each pass and fed from a rectifier through a control unit. For internal protection of pipelines, the anodes are installed at intervals depending on pipe diameter.

Full protection can be given to all sizes of pipeline ranging from 12 in. dia. min. with water velocity up to 10 ft. per

sec. The cost of thus protecting a pipeline carrying sea water is lower than the cost of a concrete or plastic lining.

Further details can be obtained from the manufacturer, Metal & Pipeline Endurance Limited, Artillery Mansions, Victoria St., London, S.W.1.

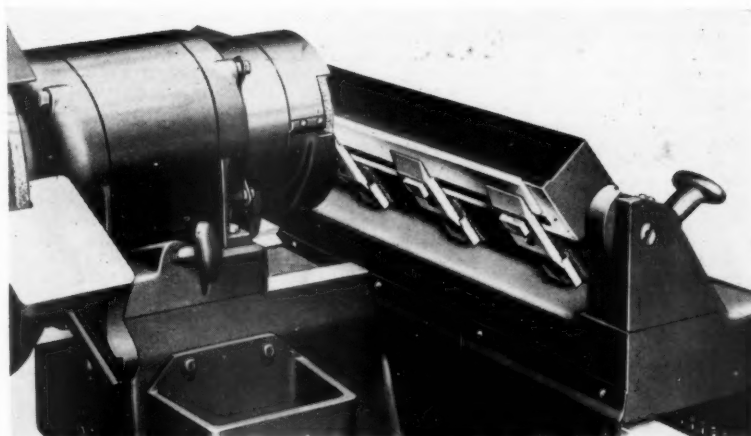
Safety Shut-down Valves

TWO new solenoid valves now are available for engines and gas turbines. They are for use with automatic protection switches or panels designed to shut down the engine in the event of abnormal operating conditions.

When fall of lubricating oil pressure causes protection equipment to stop an engine, the safety switch must be isolated during the starting sequence so that normal working pressure can be established. Normally, protection equipment is switched in after re-starting, but where the shut-down device is electrically-maintained in the "run" position, means must be found for holding the device open until the protection equipment is alive.

The Teddington YF/R valve has been designed to open in the event of electricity failure and automatically to stop the engine. This function gives the valve a particular advantage when applied to the protection of generating sets. A manual lever holds the valve open during starting and is returned to the automatic position by hand when the protection equipment is brought into circuit. The valve then is held open electrically and thus is free to cut off immediately it is de-energised by the protection equipment under fault conditions.

Having a straight-through $\frac{3}{8}$ in. ported body, the valve may be used to cut off the fuel supply to the injection pump, or in the case of gas turbines, to the burner. Alternatively, it may be used for the control of hydraulically-operated governors. The Teddington WU valve is intended for applications where it is inconvenient to use the normal shut-down valve which must be re-set after operation. It is of the balanced, slide pattern and has a three-way body and can be used either for cut-off or diverting service. When used as a cut-off valve, it can be arranged to open



or close when energised by plugging the appropriate port.

This valve has been designed for the control of fuel oils and other fluids at viscosities up to 1,000 sec. Redwood No. 1 at pressures ranging from 0 to 300 lb. per sq. in. It is equipped with an interlocking switch operated by the valve spool to provide a remote indication of valve position.

Apart from its normal use as a shut-down valve, this new model already has been used for applications such as the protection of hydraulically-operated clutches.

Further details can be obtained from the manufacturer Teddington Industrial Equipment Limited, Sunbury-on-Thames, Middlesex.

Grinder for Wood Cutters

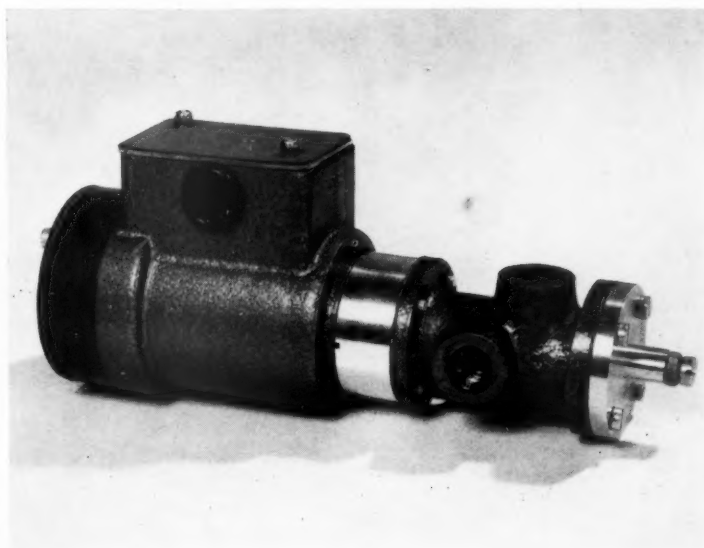
AN automatic dry grinder now is available for sharpening straight cutters up to 38 in. wide and for shaping mould cutters. A cone can be fitted for sharpening gouges. Primarily designed for the timber trade, the machine also is suitable for sharpening paper- and leather-cutting tools.

The method of mounting has been

designed to facilitate quick changeover and adjustment. Serrated setting slips locate the cutters, and zero setting ensures dimensional uniformity and parallelism of all cutters in a set. Ball mounting prevents backlash and facilitates smooth feeding. The angled grinding head has been designed to give consistent hollow grind regardless of wheel wear and to allow cutters to be honed without danger of dubbing over. A constant-direction traverse motor simplifies electrical controls and effects a smooth reversal of carriage.

Normally provided with a stand, the machine can be bench-mounted. The cutter carriage, which is fitted with cleaning pads and which runs on sealed ball-bearings, automatically is traversed by the non-reversing motor. Instantly-adjustable trip dogs govern the extent of traverse. The carriage track is renewable.

The tilting cutter bar mounts cutters singly or in a gang and incorporates quickly-interchangeable locking devices for thick or thin cutters and setting slips for location. Locking devices secure the bar in position, the grinding angle being shown on a protracted machine-engraved barrel. The directly-motorised grinding head is fitted with a 5 in. dia. \times 3 in. wide cup grinding wheel for straight grinding. It moves in a hardened ball



track and adjusts by handwheel, setting being shown in thousandths of an inch.

Grinding wheels up to 12 in. dia. \times 1 in. thick for shaping mould cutters are mounted at the opposite end of the grinding head. The tool rest is adjustable for grinding angle and wheel-wear compensation. It projects beyond the wheel face for maximum cutter support. A coolant tank is provided.

Guards cover both grinding wheels. Both permit easy wheel change, and that of the straight cutter grinding wheel has adjustment for wheel wear.

Further details may be obtained from the manufacturer, Thomas Robinson & Son Ltd., Rochdale.

Compact Air Compressor

A NEW two-stage, double-acting stationary air compressor has been developed which, because of its relatively small bulk, will be of particular interest to managements of works with limited floor-space. Overall dimensions of the new compressor are 287 cm. (length), 160 cm. (breadth), and 243.8 cm. (height). Net weight is 9,233 kilos.

Listed as available for 50- or 60-cycle electric supply, the machine incorporates a 415-rated h.p. salient-pole synchronous-flywheel motor with rotor mounted directly on crankshaft, the stator standing on its own soleplate. This arrangement affords compact design and easy installation.

A new aero-dynamic intake valve allows constant, unrestricted airflow speed. Good pumping efficiency is claimed of specially-designed cylinder wall ducts. Further new design has been incorporated in the intercooler, which is fitted with a detachable heat exchange element.

A 90-deg. cylinder arrangement ensures good running balance and low torque peaks. Valves are automatic, low-lift, and multi-plate, large enough to allow for low air velocity. The aluminium alloy

low-pressure piston is attached to its piston rod by low-expansion bushes. The high-pressure piston is of cast iron. The alloy steel piston rod is short and stiff and circled by a metallic gland. Detachable, anti-friction metal-surfaced shoes are provided on the crosshead, the pin of which is fully floating. Crankshaft is short and rigid and can incorporate plain or roller bearings. Detachable balance weights are fitted. Large inspection doors serve the iron box crankcase which is cast in one piece.

The elements of the intercooler are easily withdrawn in one piece for cleaning. A concealed, automatic condensate drain is incorporated in the intercooler casing.

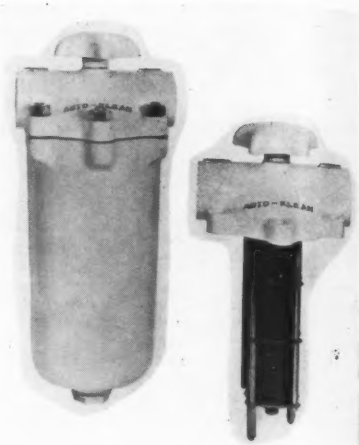
A shaft-driven gearwheel oil pump below the sump level supplies a pressure feed to all bearings. In addition, a hand-operated oil pump floods bearings during starting. The driving shaft of the oil pump also rotates the force-feed, mechanical-cylinder lubricator.

Air control has been developed to ensure good running economy. It is claimed that the highly-sensitive air regulator, the power-operated, variable-volume C.C.S. intake valve, and the air-interconnected high-pressure cylinder automatic relief valve combine to achieve accurate maintenance of 100 lb. per sq. in. within plus or minus 1 lb. It further is claimed that all surging, whether mechanical or electrical, is eliminated, and that all load variation is taken up smoothly.

Delivery is to order. Further information, including data relating to alternative motors and drives, can be obtained from the manufacturer, Broom & Wade Limited, High Wycombe, Bucks.

New Filter Designs

THREE new designs now are available in the Auto-Klean range of self-cleaning filters for liquids. These new designs have been satisfactorily used on diesel



and oil-fired steam locomotives. Based on the company's existing range, the new filters, designated O5C, 106A, and 15JA, are claimed to incorporate improved general characteristics resulting in a greater flow of oil.

The principle of defined mesh edge filtration has been used. Construction is all-metal. Cleaning can be effected by one complete turn of the handle without interrupting liquid flow. Filtering meshes range from 0.001 in. upward. Magnetic elements give added protection against damage to plant and equipment by ferrous particles. A maximum flow of 4,000 gal. per hr. can be achieved.

Although the filters primarily have been designed to handle lubricating and fuel oils, distillates, paints, and greases, special models are available for food products, beverages, chemicals, and a wide variety of liquids requiring non-standard materials of construction.

The illustration shows the 15JA model. Delivery depends on type of filter required. Further details can be obtained from the manufacturer, Auto-Klean Strainers Ltd., Lascar Works, Hounslow, Middlesex.

Radio-Frequency Surface Hardening

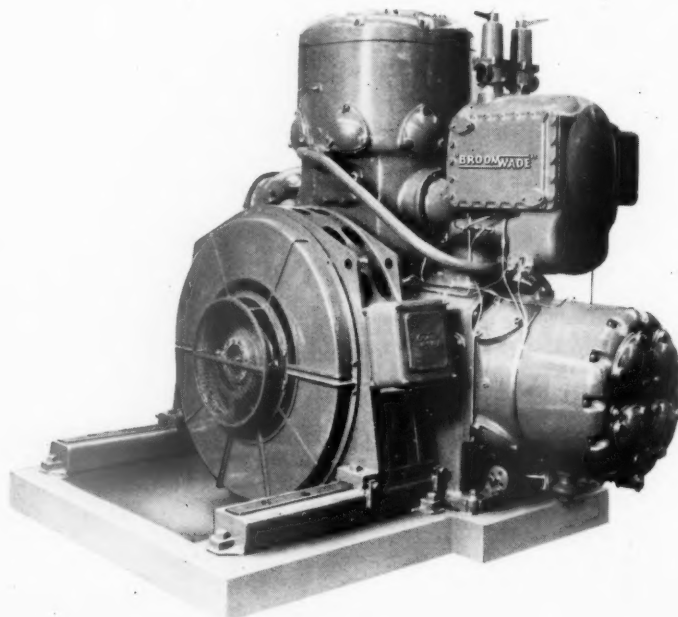
THIS method of treatment for steels which harden by heating and quenching uses radio-frequency transmission. Heating results from the resistance of the work to the induction of a surface current.

The work is held by a specialised unit electrically connected with a generator. This incorporates a timer for the heating cycle. When a fixed period has expired an electrical impulse releases the work, which drops into oil or water for quenching.

Concentrators are used for localised or quickly-developed heating. Depth of hardening can be varied. Operation is automatic. Minimal distortion is claimed.

Advantages claimed are: ease of regular repetition; suitability for bulk quantities and maintenance of regular quantity in a run; a slow rate of absorption of current after hardening temperature is reached and a consequent insurance against overheating.

Contract work is undertaken by Flame Hardeners Limited, Shorter Works, Bailey Lane, Sheffield 1.



British Thomson-Houston Co. Ltd.

Many electric traction orders during past year for railways in Britain and overseas

For the second year running, the number of electric traction orders received by the British Thomson-Houston Co. Ltd. in 1958 was a record. Most of these were for British Railways and London Transport Executive.

From British Railways a third order was received for Type "2" diesel-electric 1,160-h.p. locomotive equipments. It was for 84 sets, bringing to a total of 114 the number of B.T.H. equipments of this type ordered in connection with the modernisation plan. During the year a number of Type "2" locomotives, built at the British Railways Derby Works were placed in service, and production is to continue steadily throughout 1959. The first order for 10 Type "1" 800-h.p. locomotives was completed. These locomotives are now working on freight duties in the London area. A second order for 10 Type "1" locomotives was received from British Railways, for delivery during the current year.

In connection with the 1,000-h.p. diesel-hydraulic locomotives ordered by the Western Region of British Railways, B.T.H. has received an order for 52 sets of electrical equipment. This follows previous orders for similar equipment for the 1,000-h.p. and 2,000-h.p. prototypes which went into service during the year.

Rectifiers

The germanium power rectifier, which for over two years had given good service on one of the motor coaches on the Lancaster-Morecambe-Heysham line, electrified experimentally at 50 cycles, was replaced during the year by equivalent silicon units to enable trials to be carried out with the latest type of semi-conductor rectifier. Fewer cells are required when compared with germanium, and they can operate safely at a higher temperature.

A further order was received from London Transport for 504 sets of control equipment for new stock on the Piccadilly and Metropolitan Lines. This brings to a total of 1,886 the electro-pneumatic cam-shaft equipments ordered for London Transport trains from B.T.H. since the initial order was placed for the 1938 tube stock. Delivery of these equipments will continue into 1962.

A further order from L.T.E. was for 12 Type PCU equipments, a development of the PCM unit, incorporating a single cam-shaft which replaces several of the separate air-operated units on the PCM. These equipments are to be installed on Central Line trial cars.

On the Yonge Street Subway of the Toronto Transit Commission, two advance experimental rheostatic braking equipments were put into service and are operating in conjunction with the 134 PCM equipments previously supplied. A total of six is being supplied. They provide electric braking which automatically merges with the normal air brakes in all conditions of operation. A further feature is the use of heat from the resistors to warm coaches in winter.

Orders for equipments for industrial diesel-electric locomotives were influenced by the industrial recession. Orders were received from Ruston & Hornsby Limited and from the Yorkshire Engine Co. Ltd. for over 50 sets of equipment, including that required for 16 Y.E.C. shunting locomotives for the Port of London

Authority. This was a repeat order after satisfactory operation of a batch of 400-h.p. locomotives.

Orders for Railways Overseas

Good progress was made on export orders in hand. Five of the 31-ton diesel-electric shunters for I.S.C.O.N. for the new Indian Steelworks were shipped, and one of the 72-ton bogie locomotives was completed.

The first of the 18 400-h.p. diesel-electric locomotives for the New Zealand Government Railways was completed in January and production will continue throughout 1959. The Yorkshire Engine Co. Ltd. completed three 400-h.p. Bo-Bo locomotives for the African Manganese Co. (Mines Management) Ltd. to operate in British Guiana. These incorporate B.T.H. electrical equipment.

A development in the field of diesel-electric traction last year was the equipping of two ore-transfer cars for South Africa. These are powered by 130-h.p. Rolls-Royce engines which drive B.T.H. traction generators. Power is transmitted to the wheels by two axle-hung traction motors. There is a cab with a driving control position at each end of the car. Compressed-air brakes are fitted for emergency braking, but rheostatic braking is provided for normal service and is effective down to 2 m.p.h.

Type RP resistor production continued at a high level. Orders are in hand for various road and rail applications. Production of battery vehicle control and motors was well maintained at a rate of about 300 equipments a year.

Power Rectifiers

The formation of the Heavy Plant Division of Associated Electrical Industries Limited resulted in greater manufacturing and technical resources being made available for the production of power rectifiers. Much development work in this field originated by the two companies concerned, British Thomson-Houston Co. Ltd. and Metropolitan-Vickers Electrical Co. Ltd., before the Division was formed.

The decision of the British Transport Commission to proceed with a.c. main-line electrification led to a further development of rectifiers for traction duty. The success with which this was carried out for both mercury-arc and semi-conductor types of equipment is shown by the large amount of electrical equipment being supplied for motor coaches and locomotives of British Railways.

The application of pumpless rectifiers to 3,000-volt railway traction service commenced with a trial B.T.H. rectifier which went into service on South African Railways in October, 1954. Early in 1958, 12 3,000-V. equipments with a total rating of 32,000 kW. went into operation on the Culcutta suburban electrification of the Eastern Railway of India, and this installation is reported to have given good service.

For the 50-cycle locomotives and motor coaches for British Railways, pumpless air-cooled rectifiers of special design were developed to withstand vibration and other arduous conditions of service encountered on vehicles.

Machine Tool Equipment

During the year further orders were received for complete sets of electrical equip-

ment, including d.c. motors, a.c. motors, motor-generator sets, and a.c. and electronic cubicles, for Asquith 6-in. and 7-in. spindle ram-type milling and boring machines.

One of these machines will be exhibited at the European Machine Tool Exhibition which will be held in Paris during September, 1959, it is the first British machine tool of its kind to be shown on the Continent. It will have a 70-h.p. d.c. spindle drive and d.c. motors for the horizontal and vertical feed motions, all of which will be controlled from motor-generator sets. The remainder of the drives will operate on a.c. The control gear will include regulators for controlling the generator and motor fields of the Ward-Leonard systems or, alternatively, for steering control of the horizontal and vertical-feed motors. In addition, the machine will be equipped with electronic co-ordinate setting equipment which will automatically position the column and slide of the machine.

Orders were received from Kendall & Gent Limited, for a.c. and d.c. motors, a motor-generator set, selsyns and control gear for large plano-milling machines. One of these will have seven milling heads powered by a.c. motors totalling 155 h.p., and a new type of feed control to the milling heads designed by B.T.H. will be included.

Liverpool-Manchester Line Bridge over By-Pass

Work is to be completed in August on a bridge near Patricroft, Lancs., to carry the Liverpool to Manchester line of British Railways, London Midland Region, i.e. the former Liverpool & Manchester Railway, over the Stretford-Eccles by-pass road. Construction began in September, 1958. Four tracks and a footway will span the by-pass about $\frac{1}{4}$ mile west of Patricroft Station.

The number and proximity of the tracks resulted in a deck type design for the superstructure consisting of welded, main girders under each rail and in situ concrete well decks forming independent single track bridge units. To provide the 17 ft. headroom for the motorway, it was found necessary to build in two spans, so reducing construction depth. A reinforced-concrete portal frame forms the central support.

The distance between the centres of bearings of each skew span is 40 ft. 9 in. The square dimension between faces of the abutments is 73 ft. 4 in.

Sheet Piles

Founded on sand, the footings to the sub-structure are completely contained within sheet pile perimeters driven 15 ft. below footing level. The sheet piles have two major functions. They form the lining to the trenches during excavation. They also carry the temporary waybeams over the trenches for traffic running at unrestricted speed. The carrying capacity for the latter purpose was based on driving tests. The abutments and wing walls are being constructed in mass concrete, brick faced with 2 in. thick sand facings tied to backing bricks.

The superstructure is a composite design. The concrete floor has been designed to resist the compressive forces through shear connectors welded to the top flanges of the girders. Over the reinforced concrete portal the main girders are stepped so that one span sits on the other, so taking the reaction from both spans through the bearing on the axis of the portal. The whole of the deck area will be waterproofed.

The bridge units, eight in all, will be prefabricated alongside the railway on temporary trestles. In one 30-hr. possession, the temporary bridge units will be lifted out and the permanent bridge units will then be rolled into position and jacked down to sit on to steel pedestal bearings. The remainder of the dumping will then be excavated from the two openings to motorway formation level.

The footbridge will be a single span of approximately 82 ft. in the form of the prestressed concrete T beam, cast *in situ* before removal of the dumping, overall width 7 ft. 6 in. to accommodate a 6-ft. wide footpath. The Freyssinet system of post-tensioning will be used. The approaches to the footbridge are to be ramped paths at 1 in 10. These necessitate a widening at the foot of the existing embankments.

The construction programme has been drawn up to give access through the bridge to the roadway contractor next June. The work is being undertaken by the London Midland Region on behalf of the Lancashire County Council. Dew & Co. Ltd., Oldham, is responsible for the construction and the contract for supply, fabrication and delivery of the permanent steel work has been awarded to John Booth (Bolton), Limited.

Diesel Shunting Locomotives for British Railways

As reported in our Contracts and Tenders columns last week, the British Transport Commission has placed orders for 102 diesel shunting locomotives in the 200-225-h.p. range, with 37 sets of power equipment for incorporation in similar locomotives to be constructed in British Railways workshops.

The Drewry Car Co. Ltd. is to supply 13 204-h.p. locomotives, and the 37 sets of power and transmission equipment, therefore when the orders are completed there will be some 233 of this type of locomotive in service, of which 88, or about one-third, will have been supplied by the contractor.

The first British Railways 204-h.p. diesel shunting locomotive supplied by the

Drewry Car Co. Ltd was placed in service in February, 1948, and is now in traffic in the Southern Region. During the intervening period, successive batches have been delivered to the Eastern, North Eastern, and Southern Regions. The basic design has undergone only normal detail improvement during the whole period of 11 years since the locomotive was first commissioned.

The engine is a Gardner "8L3" unit, driving through a Vulcan-Sinclair rigid

traction type hydraulic coupling to a Wilson-Drewry five-speed air direct-operated epicycle gearbox. The five-speed unit, which has always been a feature of the Drewry locomotive, allows a top speed in the region of 28-30 m.p.h.

Apart from normal shunting duties, the same locomotive can be utilised for light passenger working. An example of this is the seasonal hop-pickers special train on the former Kent & East Sussex branch of the Southern Region.

Engineering Work on the Great Northern Line

Track improvements on the Hertford North branch

Work is to start on February 1, on track improvements on the Hertford North branch of the Great Northern Line, British Railways, Eastern Region.

The work is an essential preliminary to electrification, but in the normal course of events it would be spread over some two to three years and during that time passengers would have to suffer the inevitable delays caused by single-line working and heavy speed restrictions.

This would probably cause some resentment among passengers and the Traffic Manager, Kings Cross, in consultation with the Chief Civil Engineer, Eastern Region, has decided to cut across normal procedures and to take drastic action to ensure that by June of this year, when a full diesel service is to be introduced, the engineering work will be largely complete and the speed limit raised to 70 m.p.h. over almost the whole of the branch.

Temporary Operation

To concentrate the work, the section between Wood Green and Crews Hill will be started first. Work will begin on February 1 and be completed before the end of March. The remaining section between Crews Hill and Hertford North will then be taken in hand. The train service over the section given over to the engineers will be replaced by buses except during the morning and evening peak periods when a near-normal train service will operate over the whole branch. The small

amount of freight traffic now handled at Watton and Stapleford will be dealt with at Hertford, Knebworth, or Langley during the whole operation, to provide accommodation for passenger coaching stock at night between Hertford and Langley.

It will be necessary for further work to be done during weekends for some months, but by the time the Winter, 1959, timetable comes into force, it is expected that, as a result of experience gained during the summer and the lifting of the speed limit to 70 m.p.h. over virtually the whole branch, a still further improved service will be possible.

The present speed restriction between Bowes Park and Hertford North is 40-50 m.p.h. and the present track formation conditions are adequate for this speed, but to raise the speed limit to 70 m.p.h. extensive track improvement work is necessary.

Track Works

Where the lower formation is in good condition, but the surface ballast is dirty and does not allow water to drain out of it, the track is to be rebalasted to a depth of about 12 in. under the sleeper bottom. Some 24 single-track miles between Bowes Park and Hertford North will be dealt with in this manner. This work will be carried out during the week, between peak passenger services, in 20-hr. cycles.

Where the lower formation consists of poor clay, more extensive formation renewal is necessary. This consists of the excavation, to a depth of 3 to 4 ft. below the sleeper bottom, of all old ballast and clay, the provision of a sand cushion on the clay formation, and new ballast. This work can only be carried out in periods of long possession, and the work will be done during 40-hr. possessions at weekends.

Drainage Overhauls

In addition to these two formation renewal operations, all existing drainage will be overhauled, a number of new drains installed, and the whole of the track re-aligned and re-canted for the higher speeds. A number of embankments will also be trimmed and stabilised. Some 400 wagons of spoil will be disposed of each week. Sand and gravel will be obtained locally, as far as possible, but special trains of new slag ballast in hopper wagons will be brought from Scunthorpe at a rate of 500 tons a day. The ballast cleaning and excavating operations will be as fully mechanised as possible, using a mechanical ballast cleaner, mechanical track tampers, and various types of earth moving plant.

It is intended that all the works involving surface ballast only will be completed by mid-June, and that the remainder of the work will be completed, during week-ends only, by the end of the year.



Drewry 204-h.p. diesel locomotive hauling a materials train at Hither Green, British Railways, Southern Region

Contracts and Tenders

B.T.C. orders for diesel locomotives, rolling stock, and electric train equipment

The British Transport Commission has placed the following contracts for main-line diesel locomotives, passenger coaches, goods wagons, and electric train equipment:—

Main-line Diesel Locomotives

Brush Electrical Engineering Co. Ltd.: 20, Type "2," 1,365 h.p. locomotives
English Electric Co. Ltd.: 10, Type "4," 2,000 h.p. locomotives

The British Thomson-Houston Co. Ltd.: 10, Type "1," 800 h.p. locomotives
Birmingham Railway Carriage & Wagon Co. Ltd.: 9, Type "2," 1,160 h.p., and 20, Type "3," 1,550 h.p. locomotives

Electric Train Equipment

Metropolitan-Vickers Electrical Co. Ltd.: 124 sets of electrical equipment for the conversion of the Liverpool Street-Chelmsford-Southend multiple-unit trains to the 50 cycle a.c. system

Rolling Stock

Metropolitan-Cammell Carriage & Wagon Co. Ltd.: 48 corridor first class coaches, 10 for the London Midland Region, 8 for the Eastern and North Eastern Regions, and 30 for the Western Region; and 45 corridor composite first and second class coaches for the London Midland Region

The Gloucester Railway Carriage & Wagon Co. Ltd.: 20 corridor second class brake coaches for the London Midland Region; and 5 corridor composite first and second class brake coaches for the Eastern and North Eastern Regions

The Birmingham Railway Carriage & Wagon Co. Ltd.: 6 open first class coaches for the London Midland Region

The Standard Railway Wagon Co. Ltd.: 10, 40-ton flat trolley wagons for the London Midland Region, and 15, 50-ton special bogie-bolster wagons for the Western Region

Tees Side Bridge & Engineering Works, Limited: 2, 40-ton flat-trolley wagons for the London Midland Region
Cambrian Wagon & Engineering Co. Ltd.: 27, 38-ton low bogie wagons (RECTANKS) for the Eastern and North Eastern Regions.

South African Railways has placed the following contracts:—

M. Wegener & Co. (Pty.) Ltd., Johannesburg: substation equipment, value £66,108

Aberdare Cables Africa Ltd., Standard Telephones & Cables Ltd., Safimex (Pty.) Limited, Rice & Diethelm Limited, Hackenthal-Drant & Kabelwerke, and Siemens S.A. (Pty.) Limited: U.G.A. cable, value £6,161; £9,462; £874; £3,164; £343; and £204 respectively

F. G. Slack & Co. (Pty.) Ltd.: mobile radio-telephone equipment, value £5,260
Stewarts & Lloyds of S.A. Limited: steady arm tubing, value £5,677

Stratford Engineering (Pty.) Limited, and Reunert & Lenz Limited: lightning arresters, value £1,693 and £5,000 respectively

S.A. Philips (Pty.) Limited: fluorescent fittings, value £19,001

A.D.C. Engineering (Pty.) Limited, J. Stone & Co. Africa (Pty.) Limited, and H. Alers Hankey Limited: superheater flue tubes, boiler tubes, and superheater elements, value £4,765; £1,413; and £5,904 respectively

Scaw Metals Limited, Henricot Steel Foundry S.A. (Pty.) Limited, Reunert & Lenz Limited: automatic couplers

and spares, value £46,000; £5,963; and £302,593 respectively

Dorman Long (Africa) Limited: tank barrel ends, value £15,099.

British Railways, North Eastern Region, has placed the following contracts:—

Brims & Co. Ltd.: sheet steel and concrete piling work at Stainsby Beck, Newport Marshalling Yard

Taylor (Crook) Limited: main line embankment and piping of drainage channel

Steels Engineering Installations Limited: pipework installations, Heaton Carriage Sidings.

Feska Industrial Equipments Limited: thermit quick welding equipment

F. Bode & Son Ltd.: two electrically operated manipulators, Darlington Locomotive Works

Wayne Tank & Pump Co. Ltd.: dispensing units and meter, Bradford Hammerton Street

W. P. Butterfield Limited: oil storage tanks, Bradford Hammerton Street

E. Davis (Fixers) Limited: reconstruction of superstructure, bridge No. 4, Haverton Hill

Paterson Hughes & Engineering Co. Ltd.: additional hoist blocks, Dinsdale Rail Welding Depot

Harbour & General Works Limited: reconstruction and widening of superstructure, bridge No. 255, Sunderland

James Childs: dismantling and removal of bridges Nos. 192A, and 192B, New Monkton

Yale & Towne Manufacturing Co. Ltd.: one fork lift truck and ancillaries, Hull English Street.

British Railways, Southern Region, has placed the following contracts:—

Taylor Woodrow Construction, Limited: office accommodation for centralisation and mechanisation of goods accounts, Southampton—South Western House

Maurice Hill, Limited: renewal of cladding, Victoria Station

Vulcanite, Limited: waterproofing to bridge decking, St. Leonards West Marina

E. H. Curd & Co. Ltd.: provision of bulk petrol storage, Chichester, and new weighbridge pit and office, Horsham Goods Yard

Holloway Metal Roofs, Limited: copper roofing for new telephone exchange, Margate

R. Corben & Son Ltd.: new telephone exchange, Chatham

Johnson Bros. (Aylesford), Limited: resurfacing and surface dressing of roads, footpaths, and platforms, Ashford district

Tubwrights, Limited: fabricated steelwork for gantries, Victoria Carriage Cleaning Shed

W. R. Payne & Sons Ltd.: station renovations, Faversham.

The Special Register Information Service, Export Services Branch, Board of Trade, has received calls for tenders as follow:—

From Portuguese East Africa:

100 wheel and axle assemblies for railway wagons.

The issuing authority is the Ports, Rail-

ways & Transport Department, Lourenço Marques. The tender No. is 17/59. A provisional deposit of Esc. 11,000 must be made by tenderers. The closing date is January 30, 1959. Local representation is essential. The Board of Trade reference is ESB/1112/59.

420 rails of 12 m., 30 kgs./m., low section

470 pairs of fishplates for 30 kgs./m. rails

1,800 rail bolts with spring washer for 30 kgs./m. rails

30,000 galvanised rail spikes

6 sets of points, complete, 1:9, left, for 30 kgs./m. rails

10 sets of points, complete, 1:9, right, for 30 kgs./m. rails.

The issuing authority is the Ports, Railways & Transport Department, Lourenço Marques. The items are additional to those called for against tender No. 209/58, recorded in our issue of October 31, 1958. Provisional deposits are required as follows: rail bolts, Esc. 8,800; rail spikes, Esc. 66,000; rails, Esc. 753,000; fishplates, Esc. 42,000; points, Esc. 60,000. The Board of Trade reference is ESB/26144/58.

350 automatic coupling knuckles "Alliance No. 2" to drawing No. UW-X-7.05

150 automatic coupling knuckles "Atlas No. 1" to drawing No. 50-X-7.05.

The issuing authority is the Ports, Railways & Transport Department, Lourenço Marques. The tender No. is 23/59. A provisional deposit of Esc. 12,500 must be made by tenderers. The closing date is February 6, 1959. Local representation is essential. The Board of Trade reference is ESB/1309/59.

From Korea:

20,000 angle bars, $\frac{1}{4}$ in. \times $1\frac{1}{2}$ in. \times $1\frac{1}{2}$ in.

100,000 rail bolts, $\frac{1}{2}$ in. \times $3\frac{1}{2}$ in.

15,000 ft. of standard $1\frac{1}{4}$ in. steel pipe

3,000 ft. of standard $1\frac{1}{2}$ in. steel pipe

8,000 steel plates $\frac{3}{8}$ in. \times 3 ft. \times 6 ft.

1,000 steel plates $\frac{3}{8}$ in. \times 4 ft. \times 8 ft.

860 steel plates $\frac{1}{2}$ in. \times 4 ft. \times 8 ft.

100,000 spring washers, $\frac{1}{4}$ in.

100,000 track spikes $\frac{1}{2}$ in. \times 6 in.

355,000 fish plates

115,000 spring steel bars

75 grinding wheels, 8 in. dia. \times 1 in. thick

25 cup type wheels, 2 in. thick

The issuing authority and address to which bids should be sent is the Office of Supply, Government of the Republic of Korea, Seoul, Korea. This purchase will be financed by the International Co-operation Administration (I.C.A.), the agency through which the United States Government gives economic and technical assistance to other countries. The tender No. is 404-R. The closing date is February 20, 1959. The Board of Trade reference is ESB/808/59/I.C.A.

Further details regarding the above tenders, together with photo-copies of tender documents, can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1).

Staff and Labour Matters

Redundancy—Mineworkers

The National Union of Mineworkers has asked the National Coal Board to consider a revision of its redundancy agreement to provide that compensation payments to displaced miners shall continue for 12 months instead of six months when they do not find work in the meantime.

An increased amount of compensation also is being sought as well as removal of the embargo restricting the payments to men with three years' service in the industry.

Approximately 13,000 men are expected to be displaced due to closure of pits but about two-thirds of that number will be found alternative employment by the Coal Board.

Rail Redundancies

British Railways has called on 128 men over 65 in the carriage and wagon department of its Swindon factory to retire at the end of February. The men no longer are required because of a fall in available work.

Notes and News

Wagons Overturned by Avalanche Blast.—Eight wagons of a goods train on the Arlberg line of the Austrian Federal Railways were blown off the track and down an 18-ft. embankment near St. Anton-am-Arlberg last week by a blast of air displaced by an avalanche. Little snow fell on the track.

Lincoln Goods Depot Opened.—Sir Reginald Wilson, Chairman of the Eastern Area Board, British Railways, officially opened the rebuilt goods depot at Holmes Yard, Lincoln, on January 16. The ceremony took place in the single-span goods shed which is 368 ft. long by 140 ft. wide, and has been erected on the same site as the old shed. The building is a single-span steel portal frame all-welded structure, carried on concrete pressure piles. Three tracks, each capable of holding 17 wagons, have been laid inside the shed

and run its whole length. The tracks in the goods yard have been re-designed. Four sidings to the North of the shed with a total capacity of 46 wagons have been laid for traffic awaiting shunting into the shed. A slat conveyor 320 ft. long and 3 ft. wide has been installed on a raised reinforced concrete slab within the shed. It is flanked to the West end by two rail tracks with accommodation for six wagons, and at the East end by 38 berths for cartage vehicles.

B.T.C. Passenger Charges Scheme.—The Transport Tribunal will resume the hearing of the British Transport Commission Passenger Charges Scheme, 1958, at the Niblett Hall, 3, (North) King's Bench Walk, Temple, London, E.C.4, at 11 a.m. on February 3. A brief account of the recent preliminary hearing was given in our January 2 issue.

Railway Benevolent Institution.—At a meeting on January 19 the Board of the Railway Benevolent Institution granted annuities to six widows and 10 members involving an additional liability of £369 a year; 116 gratuities also were granted amounting to £1,115 to meet cases of immediate necessity. Grants from the Casualty Fund made during the month of December amounted to £1,412.

Reduced First Class Fares between London and Edinburgh.—For the next three months, a reduced first class fare of £7 7s. 6d., representing a reduction of 25 per cent., is to operate every Saturday, except Easter Saturday, between London Kings Cross and Edinburgh Waverley. The facility will be introduced on January 24, and will be in force until April 25. The return journey may be made either on the day of issue or on the following Saturday. No break of journey is permitted. Supplementary charges must be paid for travel by Pullman car trains and in sleeping cars.

Buenos Aires Great Southern Railway Liquidation.—The liquidator's final report on the Buenos Aires Great Southern Railway for the period from commencement of liquidation on April 2, 1958, to close of winding-up on January 28, 1959, will

be submitted to the general meeting of the company in London on January 28. In May 1948, the loan capital was duly redeemed, and in December 1948, a distribution of £16,400,000 was made to preference and ordinary stockholders. Subsequently three distributions totalling £2,193,500 were made. Amounts unclaimed were paid into the companies liquidation account at the Bank of England.

Steel Output in Europe.—European steel production declined slightly during the first nine months of 1958. Imports of finished steel products into the main importing countries declined in most cases, except for France, the Saar, Italy, and West Germany, where imports exceeded slightly the 1957 level. Exports of Europe's main exporting countries showed an overall decline.

Southern Region Train Service Alterations. In the final paragraph of an article on train service alterations in the Southern Region on page 83 of last week's issue, it was stated that an additional train runs from Charing Cross at 6.20 p.m. to principal stations to Hastings. This train runs only on Sundays and arises from the increased use of the Hastings line multiple-unit diesel trains in the London-Folkestone-Dover services at week-ends.

English Electric Co. Ltd. Issue Over-Subscribed.—Final figures of applications for the English Electric Co. Ltd. £6,000,000 5½ per cent debenture show that in all £100,000,000 stock was requested. All applicants will receive an allotment, but the heavy over-subscription has resulted in a drastic scaling down of requirements. The basis used was 5½ per cent of requirements with a minimum of £100 stock. The rights offer of 1,826,606 ordinary shares closes on January 27.

New L.T.E. Poster to Encourage Off-Peak Travel.—As part of the current campaign to encourage the use of Underground and bus services in the off-peak periods, London Transport has issued a new poster. It is headed "The Empty Seats" and explains the economic difficulties of maintaining the large amount of equipment needed to operate the peak-hour services. It ends by stating: "Londoners are encouraged therefore to make the most of their buses and trains in the 'off-peak,' so as to safeguard the provision of the rush hour services which London cannot do without."

Railbuses on Cirencester and Tetbury Branches.—Diesel railbuses are to be introduced on the Kemble to Cirencester and Kemble to Tetbury branches of the Western Region on February 2. These will be the first sections of line in the Western Region to be served by this new type of vehicle. The buses will accommodate 46 passengers with a small area for luggage. The services over both branches will be intensified. In addition, new halt facilities will be afforded at Chesterton Lane on the Cirencester branch, and at Church's Hill, Culkerton and Trouble House on the Tetbury branch.

Western Region Pullman Excursion.—The first Pullman Car excursion in the Western Region of British Railways was run on January 17, from Paddington to Cardiff and back, for spectators of the England v. Wales Rugby football match. The train was fully booked and conveyed 72 first and 132 second class passengers. The first



Sir Reginald Wilson opening the goods depot at Lincoln, Eastern Region. On his left are Mr. G. F. Fienes, Line Traffic Manager, Great Northern, and Mr. H. W. Graham, Traffic Manager, Lincoln

class return fare of 63s. 3d. and the second class fare of 47s. 6d. included luncheon on the outward, dinner on the return journey, and all gratuities. Reduced fares were available to children at 45s. 3d. return first and 35s. 9d. second class. Besides the Pullman train, which left Paddington at 10.35 a.m., there was another excursion train from Paddington at 8.30 a.m.

Withdrawal of Passenger Services from Offord & Buckden Station.—The passenger train service will be withdrawn on February 2 from Offord & Buckden Station, on the Great Northern Main Line, in the Eastern Region, south of Huntingdon. Passengers will be catered for at Huntingdon North and St. Neots Stations, and by bus services operating in the area. Facilities for parcels traffic will be available at Huntingdon North.

London Trolleybus Replacements.—London Transport has announced that the replacement of life-expired London trolleybuses with diesel buses will begin on March 4. Three south and south-east London trolleybus routes are to be changed over on this date. The second stage is due on April 26, with a group of three north-east London trolleybus routes. The remaining trolleybuses will be withdrawn in stages at three- or four-monthly intervals, at dates to be announced later, except the group in the south-west area where post-war trolleybuses will remain in use.

More Loudspeakers for L.T.E. Underground Stations.—Immediate orders for loudspeaker equipment at 12 more Underground station platforms are being placed by London Transport. The stations concerned are: Bank, Central and Northern Lines; Finchley Central, Northern Line; Golders Green, Northern Line; and Liverpool Street, Central and Metropolitan Lines. The loudspeakers are expected to be in operation within the next four weeks. This is the first instalment of a programme for new equipment resulting from a review of the arrangements for passing information to Underground passengers and staff which is now being carried out over the whole system.

Fleet Street Railway Circle Dinner.—The first annual dinner of the recently-formed Fleet Street Railway Circle was held at the Charing Cross Hotel, London, W.C.2, on January 14. Some 50 persons were present. The principal guest, Sir Brian Robertson, Chairman of the British Transport Commission, welcomed the existence of the Circle, and spoke of the value to British Railways of men in responsible positions on newspapers whose attitude to the railways was friendly, and who could be relied on to use their influence to ensure fair comment on the way in which the aims of the B.T.C. and British Railways were being carried out. Mr. Harold Walton, Foreign Editor, of the *Evening News*, Honorary Secretary of the Circle, expressed the gratitude of its members for the generous way in which British Railways were organising visits of inspection of various kinds, so as to keep members fully informed of technical developments. Others present included: Sir John Elliot, Chairman, London Transport Executive; Sir Reginald Wilson, Chairman, Eastern Area Board, B.T.C.; Messrs. David Blee, H. C. Johnson, and K. W. C. Grand, General Managers respectively of the London Midland, Eastern, and Western Regions of British Railways; Mr. G. F. Fiennes, Line Traffic

Manager, Great Northern, and Mr. W. G. Thorpe, Line Traffic Manager, Great Eastern, Eastern Region; Mr. D. S. M. Barrie, Assistant Secretary General, B.T.C.; and Mr. W. J. P. Webber, Secretary, Transport Salaried Staffs' Association.

Road Casualties in November, 1958.—During November last, 537 people were killed on the roads of Great Britain and 5,918 seriously injured. The total for all casualties was 25,019. The net increase in casualties was 1,504, or 6½ per cent, compared with November, 1957. The increase in traffic on main roads is estimated at 10 per cent.

British Standard for Tyres for Crane Rail Wheels.—Part 1 of the new British Standard publication, B.S. 3037: Tyres for Crane Rail Wheels, specifies a range of double-flanged parallel-tread tyres for crane rail wheels from 18 in. dia. × 4 in. wide tread, to 36 in. dia. × 9½ in. wide. Rolling and machining tolerances, also details of material and testing are included. Copies of this standard, price 4s., may be obtained from the British Standards Institution, 2, Park Street, London, W.1.

Stewarts and Lloyds Limited Report.—In his report circulated to shareholders of Stewarts and Lloyds Limited, Mr. A. G. Stewart, the Chairman, states that for the year ending September 27, 1958, despite a halving of estimated profits for the U.K. group during the last three months compared with the corresponding period of 1957, a final dividend of 8 per cent is proposed, making a total of 11 per cent as last year. The profits for the whole group amount to £14,265,000, a decrease of £3,986,000 on last year's record figure. Prospects for general purpose tubes, which form the largest single section of the business, are now more encouraging owing to the stimulus being given by the Government to public expenditure. The meeting will be held in Glasgow on February 10.

European Convention on the Social Security of International Transport Workers.—A new step has been reached in the granting of sickness and employment injury benefits to the international transport workers in Europe when, during their work, they find themselves on the territory of another country from that in which they are insured. A draft of the administrative arrangements concerning the application of the European Convention on the Social Security of International Transport Workers was worked out at the International Labour Office during a conference of representatives of most of the countries signatory to the convention. The conference met in Geneva from January 6 to 10. The draft administrative arrangements will be considered as accepted by the countries concerned if they have not presented their observations by March 31.

Associate Membership of Institute of Transport.—New regulations have been approved by the Institute of Transport for submitting a thesis for Associate Membership. Hitherto, permission to submit a thesis in lieu of the Associate Membership examination has been granted only to applicants, over the age of 35 years, who were already Graduates of the Institute. The new regulations will make it possible for other candidates to apply for permission to submit a thesis, provided that they are over 35 years of age and have had

at least five years transport experience, and that they either (a) hold an appointment of executive responsibility in transport or (b) hold a professional qualification by examination acceptable to the Council. The regulations come into force immediately, but the old arrangements will also continue for the time being.

Branch of Institute of Transport for Nigeria.—Authority has been given by the Council of the Institute of Transport for the formation of a Nigerian Section. The Institute is at present represented in Nigeria by an Hon. Corresponding Member, Mr. F. J. H. Jaekel, M.Inst.T., but the growing number of members has created the need for a formal organisation and for a full programme of local activities.

British Standard for Steel Boiler and Superheater Tubes.—The new British Standard publication for steel tubes in boilers and superheaters, B.S.3059:1958, contains 12 separate specifications, six for carbon steel and six for molybdenum steel tubes of varying form and tensile strength. It groups together the requirements covering material composition, tests and variations in thickness, diameter, and length for tubes formerly dealt with separately in B.S.494, 512, 1652, 1653, 1654, and 1678. Additionally, for industrial boilers and superheaters the single volume contains requirements for hot finished seamless and cold drawn seamless tubes of carbon steel and of 2½ per cent chromium 1 per cent molybdenum steel. The standard follows the present practice of designing on the basis of the temperature of the metal, as opposed to that of the steam. Copies of this standard, 8s. 6d., may be obtained from the British Standards Institution, 2, Park Street, London, W.1.

Forthcoming Meetings

January 26 (*Mon.*)—Institution of Electrical Engineers, at the Royal Festival Hall, at 6 p.m. Faraday lecture on "Automation," by Dr. H. A. Thomas.

January 27 (*Tue.*)—Institution of Railway Signal Engineers, Bristol Section, at Chippenham, at 6 p.m. Paper on "C.T.C. systems and possible applications," by Mr. J. P. Coley, Westinghouse Brake & Signal Co. Ltd., and Mr. A. Webster, British Railways, Western Region.

January 27 (*Tue.*)—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, 1, Birdcage Walk, London, S.W.1, at 5.30 p.m. Three films.

January 27 (*Tue.*)—Railway Correspondence & Travel Society, East Midland Branch, at the N.C.S. Guild Room, Toll Street, Nottingham, at 7.30 p.m. Paper on "Locomotive and shed matters," by Mr. P. Baggeley.

January 28 (*Wed.*)—British Railways, London Midland Region, Lecture and Debating Society, at 5.45 p.m. Debate with British Railways, Southern Region, Lecture & Debating Society, at Chapter House, St. Thomas' Street, London, S.E.1—"That competition between the different forms of transport is a luxury the country cannot afford." Mr. H. C. Lang, Vice-President of the Southern Region Lecture & Debating Society, will be in the chair.

January 28 (*Wed.*)—Railway Discussion

Group, at the Peterborough Technical College, Eastfield Road, at 6.45 p.m. Paper on "Traffic operation—Can it be work studied?", by Mr. D. Bowick, Assistant, Work Study Section, Regional Establishment & Staff Officer, Liverpool Street.

January 31 (Sat.).—Permanent Way Institution, at the Institution of Civil Engineers, Great George Street, Westminster, S.W.1, at 2.30 p.m. Annual Winter Meeting: In the chair Mr. J. Ratter, President, followed at 5.30 for 6 p.m. by a *Conversazione*, at the British Transport Commission's Headquarters, 222, Marylebone Road, London, N.W.1.

February 2 (Mon.).—Institute of Transport, Metropolitan Section, at 80, Portland Place, London, W.1, at 5.30 for 6 p.m. Paper on "Railway reorganisation and its purpose," by Mr. G. F. Fiennes.

February 3 (Tue.).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, Cardiff Section, at the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m. Paper on "The mechanical & electrical department of the South Wales Docks since nationalisation, illustrated by Mr. E. R. Radway, Mechanical & Electrical Engineer, South Wales Docks.

February 3 (Tue.).—Institution of Civil Engineers, at Great George Street, Westminster, S.W.1, at 5.30 p.m. Paper on "Preliminary planning for the new Tube railway across London."

February 3 (Tue.).—Institute of Transport, at the Connaught Rooms, Great Queen Street, London, W.C.2, at 12.30 for 1 p.m., informal luncheon. Guest speaker, Sir Ralf Emerson.

February 4 (Wed.).—Institution of Railway Signal Engineers, London Section, at the Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 6 p.m. Paper on "The protection of facing points," by Mr. O. S. Nock.

February 5 (Thu.).—Model Railway Club, at Caxton Hall, Westminster, S.W.1, at 7.45 p.m. Paper on "The Metropolitan Railway in its electric days," by Mr. V. Goldberg.

February 5 (Thu.).—Railway Students' Association. Debate on the motion "That the decentralisation of management does not necessarily improve efficiency." Joint meeting with the British Railways, Western Region, London Lecture & Debating Society, at Paddington, at 5.45 p.m.

February 5 (Thu.).—British Railways, Western Region, London Lecture & Debating Society, at Paddington, at 5.45 p.m. Debate with the Railway Students' Association.

February 6 (Fri.).—The Railway Club, at 320, High Holborn, London, W.C.1, at 7 p.m. Annual general meeting, followed by a display of railway photographs covering the period 1895-1905.

February 6 (Fri.).—Stephenson Locomotive Society, Scottish Area, at 25, Charlotte Square, Edinburgh, at 7 p.m. "Some notes on the Drummond period of the Caledonian locomotive history," by Mr. A. J. S. Paterson.

February 7 (Sat.).—Stephenson Locomotive Society, Scottish Area, at 302, Buchanan Street, Glasgow, at 2.30 p.m. A talk on the Scottish Region Archives Department, by the Curator, Mr. Hogg.

February 7 (Sat.).—Stephenson Locomotive Society, North Western Area, at the Y.M.C.A., Fargate, Sheffield, at 6.30 p.m. Paper on "London & North Western locomotives and their work," by Dr. W. A. Tuplin.

February 7 (Sat.).—Railway Correspondence & Travel Society, Bristol & District Branch, at the Grosvenor Hotel, Bristol, 1, at 7.30 p.m. Paper on "The Cloughtons of the L.N.W.R.," by Mr. R. M. Tomkins.

Railway Stock Market

There was again a considerable amount of business passing in stock markets, but buying was a good deal more selective than of late, which is perhaps not surprising in view of the large gains recorded by many shares in recent weeks. Some are now at levels that show only moderate yields, and may be regarded as already discounting the possibility of higher dividends, which may not come until 1960 unless there is an early upswing in world trade. The latest indications do not suggest the latter is likely in the near future, but on the other hand there are growing expectations in the City that the Chancellor of the Exchequer, Mr. Heathcoat Amory, may give a further boost to home trade by a lower bank rate before long, and by tax cuts in the Budget.

There were no outstanding movements among foreign rails. Antofagasta ordinary and preference at 12½ and 26½ respectively were the same as a week ago, as were United Hanava second income stock at 6½, while San Paulo Railway 3s. units continued to be quoted at 3s. Elsewhere, however, Mexican Central "A" bearer debentures moved up from 72½ a week ago to 75.

Canadian Pacific moved up from \$52 to \$54, having reflected the recent strength of Wall Street. The 4 per cent preference stock was 54½ and the 4 per cent debentures 66½. White Pass shares were \$14½ xd.

Quotations for International Railways of Central America common shares at \$26½ and that for the preferred stock at \$112 were unaffected by the latest developments, but at the time of going to press the quotations have not been tested by dealings. Paraguay Central prior debentures were again quoted at 11. Guayaquil & Quito assented bonds were 78½. Chilean Northern first debentures 52½ and Costa Rica ordinary stock 13. Brazil Railway bonds held their recent rise to 7½.

In other directions, Nyasaland Railways ordinary shares continued to reflect higher dividend hopes and moved up further to 14s. 6d.: the 3½ per cent debentures were 62½. Elsewhere, West of India Portuguese capital stock held firm at 99½ with the 5 per cent debentures 89½.

Among shares of locomotive builders and engineers, North British Locomotive eased to 13s. 9d., and Birmingham Wagon to 18s. 9d., but the large yield attracted buyers to Beyer Peacock 5s. shares, which strengthened to 9s. Charles Roberts 5s. shares were 10s. 10½d., Wagon Repairs 5s. shares 9s. 4½d., and Gloucester Wagon 10s. shares 17s. 7½d.

Westinghouse Brake have come back to 42s. 6d. because of some disappointment with the unchanged 10 per cent dividend. Broom & Wade 5s. shares were 13s. 9d. at which there is a 5½ per cent yield on the maintained 12½ per cent dividend. British Timken have been firm at 62s., Guest Keen rallied to 55s. and Ruston &

Hornsby to 26s. 3d., while Vickers were a few pence higher at 36s. 6d. and Cammell Laird 5s. shares improved to 9s. 10½d. John Brown have recovered to 32s. 9d. Stone-Platt Industries shares held steady at 45s. 10½d.

In other directions, British Aluminium assented shares were 81s. 10½d. and Tube Investments 75s. Buyers were about for British Oxygen which rose further to 54s. because of hopes of an increase in the forthcoming dividend. G. D. Peters have changed hands up to 28s., F. Perkins shares advanced to 15s. 4½d. on news that an approach has been made to the company with a view to a take-over offer for the shares. Banister Walton 5s. shares rose to 12s. 6d. English Electric were 59s. 9d. on the success of the new issue, Associated Electrical rose to 58s. 6d. and General Electric moved up to 39s. Crompton Parkinson 5s. shares were 13s., and Dowty Group 10s. shares 45s. 6d. Pressed Steel 5s. shares have been well maintained at 24s. 7½d., but Edgar Allen declined to 32s. on the lower interim dividend. Asquith Machine Tool 5s. shares changed hands around 28s. 3d. and B.I. Cables around 49s. Johnson & Phillips rose to 29s. 6d. on vague take-over talk in the market.

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